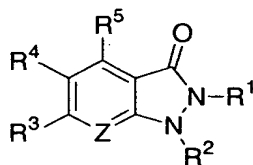


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### AMENDMENTS TO THE CLAIMS

Please replace all prior versions and listings of claims with the amended claims as follows:

1. (Currently amended) A compound of formula I:



or a pharmaceutically acceptable salt thereof, wherein:

$R^1$  and  $R^2$  are each independently hydrogen or a nitrogen protecting group;

one of  $R^3$  or  $R^4$  is -R and the other one of  $R^3$  or  $R^4$  is  $-Q^1-A-Q^2-Y$ ,

wherein  $Q^1$  is a valence bond,  $-NR^A-$ ,  $-C(R^A)_2-$ ,  $-S-$ ,  $-O-$ ,  $-SO_2-$  or  $-CO-$ , wherein each occurrence of  $R^A$  is independently hydrogen or optionally substituted  $C_{1-4}$ aliphatic, or two occurrences of  $R^A$  on the same carbon atom are taken together to form an optionally substituted 3-6-membered carbocyclic ring;

A is an optionally substituted group selected from a 5-7-membered monocyclic or 8-10-membered bicyclic aryl, heteroaryl, heterocyclic or carbocyclic ring;

$Q^2$  is  $NR^C$ , S, O, or  $C(R^C)_2$ , wherein each occurrence of  $R^C$  is independently hydrogen or optionally substituted  $C_{1-4}$ aliphatic;

Y is an optionally substituted group selected from a 5-7-membered monocyclic or 8-10-membered bicyclic aryl, heteroaryl, heterocyclic or carbocyclic ring;

$R^5$  is -R;

Z is  $CR^6$ , wherein  $R^6$  is -R; and

each occurrence of -R is independently hydrogen,  $Q_{(n)}$ halogen,  $Q_{(n)}$ CN,  $Q_{(n)}$ NO<sub>2</sub>, or

$Q_{(n)}R^7$ , wherein n is zero or one, Q is an optionally substituted  $C_{1-4}$  alkylidene chain

wherein one or more methylene units of Q is optionally replaced by  $-O-$ ,  $-S-$ ,  $-NR^7-$ ,  $-NR^7CO-$ ,  $-NR^7CONR^7-$ ,  $-NR^7CO_2-$ ,  $-CO-$ ,  $-CO_2-$ ,  $-CONR^7-$ ,  $-OC(O)NR^7-$ ,  $-SO_2-$ , -

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$\text{SO}_2\text{NR}^7$ -,  $-\text{NR}^7\text{SO}_2$ -,  $-\text{NR}^7\text{SO}_2\text{NR}^7$ -,  $-\text{C}(\text{O})\text{C}(\text{O})$ -, or  $-\text{C}(\text{O})\text{C}(\text{R}^7)_2\text{C}(\text{O})$ -, and each occurrence of  $\text{R}^7$  is independently hydrogen, an optionally substituted group selected from aliphatic, heteroaliphatic, aryl or heteroaryl, or two occurrences of  $\text{R}^7$  on the same nitrogen atom are taken together with the nitrogen atom to form an optionally substituted group selected from a 5-8-membered heterocyclic or 5-8-membered heteroaryl ring;

wherein one or more optional substituents on the unsaturated carbon atom of an aryl or heteroaryl group are independently selected from halogen;  $-\text{R}^\circ$ ;  $-\text{OR}^\circ$ ;  $-\text{SR}^\circ$ ; 1,2-methylenedioxy; 1,2-ethylenedioxy; phenyl (Ph) optionally substituted with  $\text{R}^\circ$ ;  $-\text{O}(\text{Ph})$  optionally substituted with  $\text{R}^\circ$ ;  $-(\text{CH}_2)_{1-2}(\text{Ph})$ , optionally substituted with  $\text{R}^\circ$ ;  $-\text{CH}=\text{CH}(\text{Ph})$ , optionally substituted with  $\text{R}^\circ$ ;  $-\text{NO}_2$ ;  $-\text{CN}$ ;  $-\text{N}(\text{R}^\circ)_2$ ;  $-\text{NR}^\circ\text{C}(\text{O})\text{R}^\circ$ ;  $-\text{NR}^\circ\text{C}(\text{S})\text{R}^\circ$ ;  $-\text{NR}^\circ\text{C}(\text{O})\text{N}(\text{R}^\circ)_2$ ;  $-\text{NR}^\circ\text{C}(\text{S})\text{N}(\text{R}^\circ)_2$ ;  $-\text{NR}^\circ\text{CO}_2\text{R}^\circ$ ;  $-\text{NR}^\circ\text{NR}^\circ\text{C}(\text{O})\text{R}^\circ$ ;  $-\text{NR}^\circ\text{NR}^\circ\text{C}(\text{O})\text{N}(\text{R}^\circ)_2$ ;  $-\text{NR}^\circ\text{NR}^\circ\text{CO}_2\text{R}^\circ$ ;  $-\text{C}(\text{O})\text{C}(\text{O})\text{R}^\circ$ ;  $-\text{C}(\text{O})\text{CH}_2\text{C}(\text{O})\text{R}^\circ$ ;  $-\text{CO}_2\text{R}^\circ$ ;  $-\text{C}(\text{O})\text{R}^\circ$ ;  $-\text{C}(\text{S})\text{R}^\circ$ ;  $-\text{C}(\text{O})\text{N}(\text{R}^\circ)_2$ ;  $-\text{C}(\text{S})\text{N}(\text{R}^\circ)_2$ ;  $-\text{OC}(\text{O})\text{N}(\text{R}^\circ)_2$ ;  $-\text{OC}(\text{O})\text{R}^\circ$ ;  $-\text{C}(\text{O})\text{N}(\text{OR}^\circ)\text{R}^\circ$ ;  $-\text{C}(\text{NOR}^\circ)\text{R}^\circ$ ;  $-\text{S}(\text{O})_2\text{R}^\circ$ ;  $-\text{S}(\text{O})_3\text{R}^\circ$ ;  $-\text{SO}_2\text{N}(\text{R}^\circ)_2$ ;  $-\text{S}(\text{O})\text{R}^\circ$ ;  $-\text{NR}^\circ\text{SO}_2\text{N}(\text{R}^\circ)_2$ ;  $-\text{NR}^\circ\text{SO}_2\text{R}^\circ$ ;  $-\text{N}(\text{OR}^\circ)\text{R}^\circ$ ;  $-\text{C}(=\text{NH})-\text{N}(\text{R}^\circ)_2$ ; or  $-(\text{CH}_2)_{0-2}\text{NHC}(\text{O})\text{R}^\circ$ , wherein each independent occurrence of  $\text{R}^\circ$  is selected from hydrogen, optionally substituted  $\text{C}_{1-6}$  aliphatic, an unsubstituted 5-6 membered heteroaryl or heterocyclic ring, phenyl,  $-\text{O}(\text{Ph})$ , or  $-\text{CH}_2(\text{Ph})$ , or, two independent occurrences of  $\text{R}^\circ$ , on the same substituent or different substituents, taken together with the atom(s) to which each  $\text{R}^\circ$  group is bound, optionally form a 5-8-membered heterocyclyl, aryl, or heteroaryl ring or a 3-8-membered cycloalkyl ring having 0-3 heteroatoms independently selected from nitrogen, oxygen, or sulfur, wherein one or more optional substituents on the aliphatic group of  $\text{R}^\circ$  are selected from  $\text{NH}_2$ ,  $\text{NH}(\text{C}_{1-4}\text{aliphatic})$ ,  $\text{N}(\text{C}_{1-4}\text{aliphatic})_2$ , halogen,  $\text{C}_{1-4}\text{aliphatic}$ ,  $\text{OH}$ ,  $\text{O}(\text{C}_{1-4}\text{aliphatic})$ ,  $\text{NO}_2$ ,  $\text{CN}$ ,  $\text{CO}_2\text{H}$ ,  $\text{CO}_2(\text{C}_{1-4}\text{aliphatic})$ ,  $\text{O}(\text{haloC}_{1-4}\text{aliphatic})$ , or  $\text{haloC}_{1-4}\text{aliphatic}$ , wherein each of the foregoing  $\text{C}_{1-4}\text{aliphatic}$  groups of  $\text{R}^\circ$  is unsubstituted;

wherein one or more optional substituents on an aliphatic or heteroaliphatic group, or on a non-aromatic heterocyclic ring are independently selected from halogen; -

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R<sup>o</sup>; -OR<sup>o</sup>; -SR<sup>o</sup>; 1,2-methylenedioxy; 1,2-ethylenedioxy; phenyl (Ph) optionally substituted with R<sup>o</sup>; -O(Ph) optionally substituted with R<sup>o</sup>; -CH=CH(Ph), optionally substituted with R<sup>o</sup>; -NO<sub>2</sub>; -CN; -N(R<sup>o</sup>)<sub>2</sub>; -NR<sup>o</sup>C(O)R<sup>o</sup>; -NR<sup>o</sup>C(S)R<sup>o</sup>; -NR<sup>o</sup>C(O)N(R<sup>o</sup>)<sub>2</sub>; -NR<sup>o</sup>C(S)N(R<sup>o</sup>)<sub>2</sub>; -NR<sup>o</sup>CO<sub>2</sub>R<sup>o</sup>; -NR<sup>o</sup>NR<sup>o</sup>C(O)R<sup>o</sup>; -NR<sup>o</sup>NR<sup>o</sup>C(O)N(R<sup>o</sup>)<sub>2</sub>; -NR<sup>o</sup>NR<sup>o</sup>CO<sub>2</sub>R<sup>o</sup>; -C(O)C(O)R<sup>o</sup>; -C(O)CH<sub>2</sub>C(O)R<sup>o</sup>; -CO<sub>2</sub>R<sup>o</sup>; -C(O)R<sup>o</sup>; -C(S)R<sup>o</sup>; -C(O)N(R<sup>o</sup>)<sub>2</sub>; -C(S)N(R<sup>o</sup>)<sub>2</sub>; -OC(O)N(R<sup>o</sup>)<sub>2</sub>; -OC(O)R<sup>o</sup>; -C(O)N(OR<sup>o</sup>) R<sup>o</sup>; -C(NOR<sup>o</sup>) R<sup>o</sup>; -S(O)<sub>2</sub>R<sup>o</sup>; -S(O)<sub>3</sub>R<sup>o</sup>; -SO<sub>2</sub>N(R<sup>o</sup>)<sub>2</sub>; -S(O)R<sup>o</sup>; -NR<sup>o</sup>SO<sub>2</sub>N(R<sup>o</sup>)<sub>2</sub>; -NR<sup>o</sup>SO<sub>2</sub>R<sup>o</sup>; -N(OR<sup>o</sup>)R<sup>o</sup>; -C(=NH)-N(R<sup>o</sup>)<sub>2</sub>; or -(CH<sub>2</sub>)<sub>0-2</sub>NHC(O)R<sup>o</sup>, =O, =S, =NNHR<sup>\*</sup>, =NN(R<sup>\*</sup>)<sub>2</sub>, =NNHC(O)R<sup>\*</sup>, =NNHCO<sub>2</sub>(alkyl), =NNHSO<sub>2</sub>(alkyl), or =NR<sup>\*</sup>, where each R<sup>\*</sup> is independently selected from hydrogen or an optionally substituted C<sub>1-6</sub> aliphatic, wherein one or more optional substituents on the aliphatic group of R<sup>\*</sup> are selected from NH<sub>2</sub>, NH(C<sub>1-4</sub> aliphatic), N(C<sub>1-4</sub> aliphatic)<sub>2</sub>, halogen, C<sub>1-4</sub> aliphatic, OH, O(C<sub>1-4</sub> aliphatic), NO<sub>2</sub>, CN, CO<sub>2</sub>H, CO<sub>2</sub>(C<sub>1-4</sub> aliphatic), O(halo C<sub>1-4</sub> aliphatic), or halo(C<sub>1-4</sub> aliphatic), wherein each of the foregoing C<sub>1-4</sub> aliphatic groups of R<sup>\*</sup> is unsubstituted;

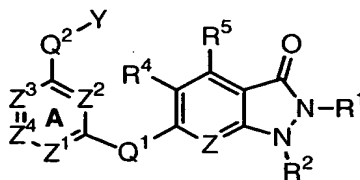
wherein one or more optional substituents on a nitrogen of a non-aromatic heterocyclic ring are independently selected from -R<sup>+</sup>, -N(R<sup>+</sup>)<sub>2</sub>, -C(O)R<sup>+</sup>, -CO<sub>2</sub>R<sup>+</sup>, -C(O)C(O)R<sup>+</sup>, -C(O)CH<sub>2</sub>C(O)R<sup>+</sup>, -SO<sub>2</sub>R<sup>+</sup>, -SO<sub>2</sub>N(R<sup>+</sup>)<sub>2</sub>, -C(=S)N(R<sup>+</sup>)<sub>2</sub>, -C(=NH)-N(R<sup>+</sup>)<sub>2</sub>, or -NR<sup>+</sup>SO<sub>2</sub>R<sup>+</sup>; wherein R<sup>+</sup> is hydrogen, an optionally substituted C<sub>1-6</sub> aliphatic, optionally substituted phenyl, optionally substituted -O(Ph), optionally substituted -CH<sub>2</sub>(Ph), optionally substituted -(CH<sub>2</sub>)<sub>1-2</sub>(Ph); optionally substituted -CH=CH(Ph); or an unsubstituted 5-6 membered heteroaryl or heterocyclic ring having one to four heteroatoms independently selected from oxygen, nitrogen, or sulfur, or, two independent occurrences of R<sup>+</sup>, on the same substituent or different substituents, taken together with the atom(s) to which each R<sup>+</sup> group is bound, optionally form a 5-8-membered heterocyclyl, aryl, or heteroaryl ring or a 3-8-membered cycloalkyl ring having 0-3 heteroatoms independently selected from nitrogen, oxygen, or sulfur, wherein one or more optional substituents on the aliphatic group or the phenyl ring of R<sup>+</sup> are selected from NH<sub>2</sub>, NH(C<sub>1-4</sub> aliphatic), N(C<sub>1-4</sub> aliphatic)<sub>2</sub>, halogen, C<sub>1-4</sub> aliphatic, OH, O(C<sub>1-4</sub>

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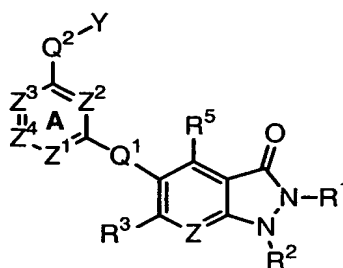
aliphatic), NO<sub>2</sub>, CN, CO<sub>2</sub>H, CO<sub>2</sub>(C<sub>1-4</sub> aliphatic), O(halo C<sub>1-4</sub> aliphatic), or halo(C<sub>1-4</sub> aliphatic), wherein each of the foregoing C<sub>1-4</sub>aliphatic groups of R<sup>+</sup> is unsubstituted.

2-3. (Canceled)

4. (Original) The compound of claim 1, wherein either of R<sup>3</sup> or R<sup>4</sup> is -Q<sup>1</sup>-A-Q<sup>2</sup>-Y, wherein A is a substituted or unsubstituted aryl or heteroaryl moiety and compounds have the general formula **IIa** or **IIb**:



**IIa**



**IIb**

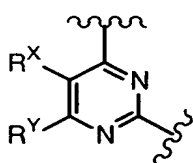
wherein Z<sup>1</sup> is N or CR<sup>V</sup>, Z<sup>2</sup> is N or CR<sup>W</sup>, Z<sup>3</sup> is N or CR<sup>X</sup> and Z<sup>4</sup> is N or CR<sup>Y</sup>, wherein R<sup>V</sup>, R<sup>W</sup>, R<sup>X</sup> and R<sup>Y</sup> are each independently R<sup>8</sup>, or R<sup>X</sup> and R<sup>Y</sup>, or R<sup>V</sup> and R<sup>Y</sup> are taken together with their intervening atoms to form a fused, unsaturated or partially unsaturated, 5-8 membered ring having 0-3 ring heteroatoms selected from oxygen, sulfur, or nitrogen, wherein any substitutable carbon on said fused ring formed by R<sup>X</sup> and R<sup>Y</sup> or by R<sup>V</sup> and R<sup>Y</sup> is substituted by oxo or R<sup>8</sup>, and any substitutable nitrogen on said ring formed by R<sup>X</sup> and R<sup>Y</sup> or by R<sup>V</sup> and R<sup>Y</sup> is substituted by R<sup>9</sup>;

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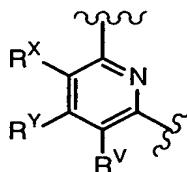
wherein each occurrence of  $R^8$  is independently  $-R$ ; and

each occurrence of  $R^9$  is independently hydrogen,  $-R'$ ,  $-\text{COR}'$ ,  $-\text{CO}_2(R')$ ,  $-\text{CON}(R')_2$ , or  $-\text{SO}_2R'$ , wherein each occurrence of  $R'$  is independently hydrogen, optionally substituted aliphatic, heteroaliphatic, aryl or heteroaryl, or two occurrences of  $R'$  on the same nitrogen atom are taken together with the nitrogen to form an optionally substituted 5-8 membered heterocyclic or heteroaryl ring.

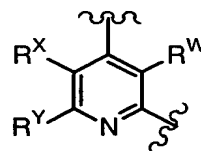
5. (Original) The compound of claim 4, wherein A represents one of the following moieties:



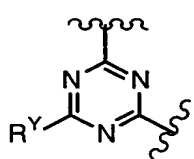
i



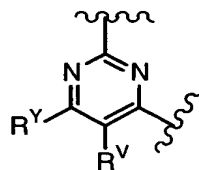
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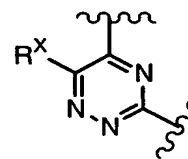
iii



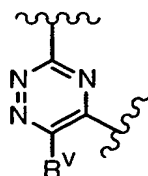
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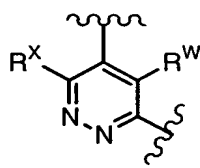
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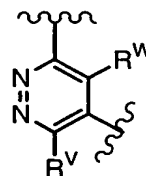
vi



vii

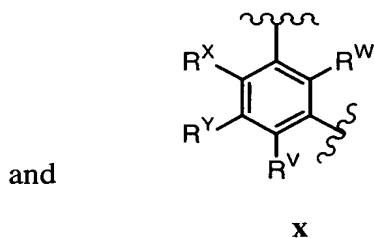


viii

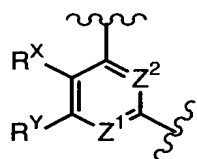


ix

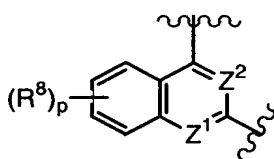
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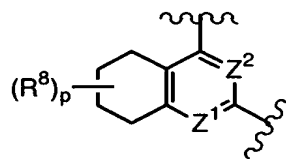
6. (Original) The compound of claim 5, wherein ring A is one of formulas **i**, **ii**, **iii** or **x**.
7. (Currently amended) The compound of claim 4, wherein Ring A is one of groups **II-A** through **II-DD**, wherein  $Z^1$  is nitrogen or  $CR^V$ ,  $Z^2$  is nitrogen or  $CR^W$ , and p is 0-4:



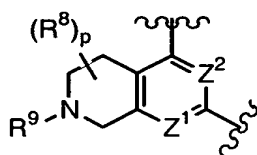
**II-A**



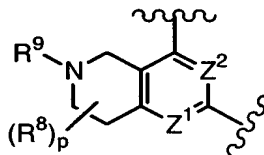
**II-B**



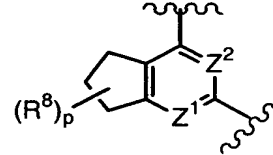
**II-C**



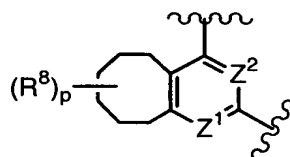
**II-D**



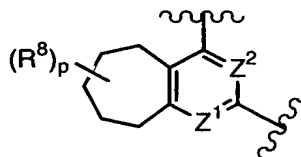
**II-E**



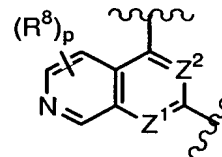
**II-F**



**II-G**

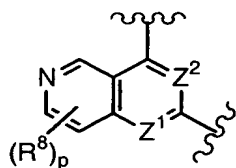


**II-H**

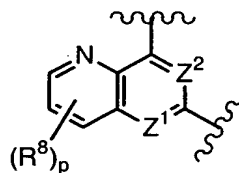


**II-I**

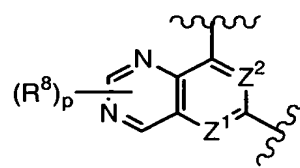
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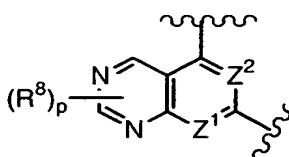
**II-J**



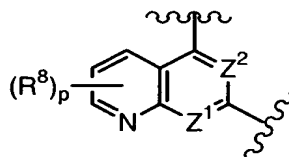
**II-K**



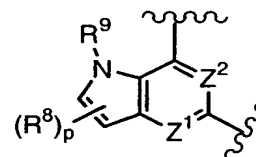
**II-L**



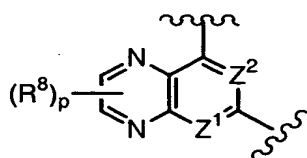
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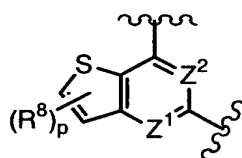
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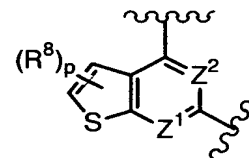
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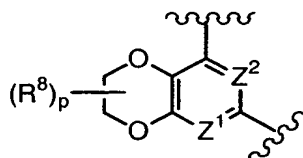
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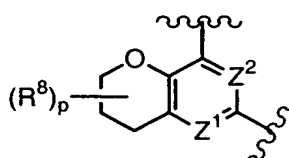
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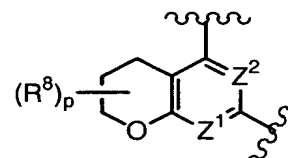
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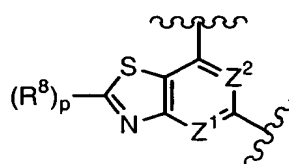
**II-S**



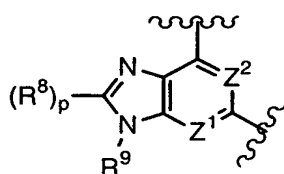
**II-T**



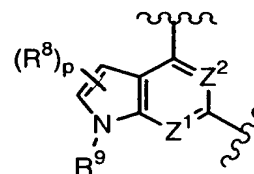
**II-U**



**II-V**

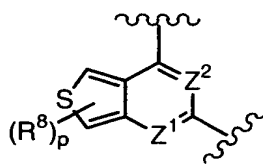


**II-W**

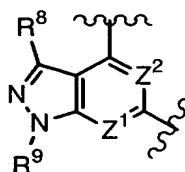


**II-X**

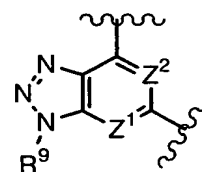
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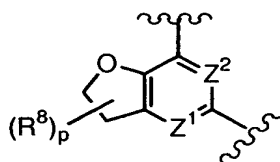
**II-Y**



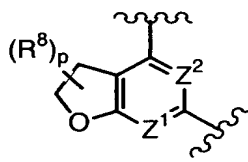
**II-Z**



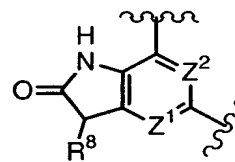
**II-AA**



**II-BB**



**II-BB II-CC**



**II-CC II-DD.**

8. (Original) The compound of claim 7, wherein ring A is one of **II-A, II-B, II-C, II-D, II-E, II-F, II-H, II-I, II-J, II-K, II-L, II-N, II-O, or II-DD.**
9. (Original) The compound of claim 7, wherein ring A is one of **II-A, II-B, II-C, II-D, II-E, II-H, or II-K.**
10. (Original) The compound of claim 7, wherein ring A is one of **II-A or II-B.**
11. (Original) The compound of claim 7, wherein  $Z^1$  is  $CR^V$  and  $Z^2$  is  $CR^W$ .
12. (Original) The compound of claim 7, wherein  $Z^1$  is N and  $Z^2$  is N.
13. (Original) The compound of claim 7, wherein  $Z^1$  is N and  $Z^2$  is  $CR^W$ .
14. (Original) The compound of claim 7, wherein  $Z^1$  is  $CR^V$  and  $Z^2$  is N.
15. (Currently amended) The compound of claim 4, wherein A is a monocyclic ring



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system and  $R^X$  groups, when present, ~~include~~ are selected from hydrogen, alkyl- or dialkylamino, acetamido, or a  $C_{1-4}$  aliphatic group ~~such as methyl, ethyl, cyclopropyl, or isopropyl~~;  $R^Y$  groups, when present, ~~include~~ are selected from hydrogen, an optionally substituted group selected from  $C_{1-6}$  aliphatic,  $C_{1-6}$  heteroaliphatic, aryl, or heteroaryl,  $-Q_{(n)}N(R^7)_2$ ,  $-Q_{(n)}OR^7$ ,  $-Q_{(n)}SR^7$ ,  $-Q_{(n)}(C=O)O(R^7)$ ,  $-Q_{(n)}C(O)N(R^7)_2$ ,  $-Q_{(n)}NHC(O)R^7$ ,  $-Q_{(n)}NHSO_2R^7$ , or  $-Q_{(n)}SO_2N(R^7)_2$ , wherein  $n$  is 0 or 1, and wherein  $Q$  is preferably  $-(C(R''))_2-$ , wherein  $R''$  is hydrogen or  $C_{1-3}$ alkyl, and wherein each occurrence of  $R^7$  is independently hydrogen, optionally substituted aliphatic, heteroaliphatic, aryl or heteroaryl, or two occurrences of  $R^7$  on the same nitrogen atom are taken together with the nitrogen atom to form an optionally group selected from a 5-8 membered heterocyclic or 5-8 membered heteroaryl ring.

16. (Currently amended) The compound of claim 15, wherein  $R^Y$  is one of the following groups: optionally substituted 5-6 membered heteroaryl or heterocyclyl rings, ~~such as 2-pyridyl, 4-pyridyl, pyrrolidinyl, piperidinyl, morpholinyl, or piperazinyl~~; optionally substituted aryl or cycloalkyl rings ~~such as phenyl, halogen-substituted phenyl, alkoxy-substituted phenyl, trifluoromethyl-substituted phenyl, nitro-substituted phenyl, methyl-substituted phenyl~~; optionally substituted  $C_{1-6}$  aliphatic, ~~such as methyl, ethyl, cyclopropyl, cyclopentyl, cyclohexyl, amino-substituted cycloalkyl, acetamido-substituted cycloalkyl, isopropyl, or t-butyl~~; alkoxyalkylamino ~~such as methoxyethylamine~~; alkoxyalkyl ~~such as methoxymethyl or methoxyethyl~~; aminoalkyl ~~such as aminoethyl, dimethylaminoethyl~~; alkyl- or dialkylamino ~~such as ethylamine or dimethylamine~~; alkyl- or dialkylaminoalkoxy ~~such as dimethylaminopropoxy~~; alkyl- or dialkylaminoalkoxyalkyl ~~such as dimethylaminoethoxymethyl~~; or acetamido.

17. (Original) The compound of claim 4, wherein A is a bicyclic ring system and the bicyclic ring system A may be substituted by one or more occurrences of oxo,  $R^8$  or  $R^9$ , wherein  $R^8$  is  $-R^7$ , halo,  $-O(CH_2)_{2-4}-N(R^7)_2$ ,  $-O(CH_2)_{2-4}-R^7$ ,  $-OR^7$ ,  $-N(R^7)-(CH_2)_{2-4}-N(R^7)_2$ ,  $-N(R^7)-(CH_2)_{2-4}-R^7$ ,  $-C(=O)R^7$ ,  $-CO_2R^7$ ,  $-COCOR^7$ ,  $-NO_2$ ,  $-CN$ ,  $-S(O)R^7$ ,

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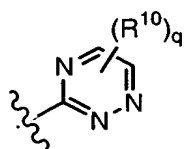
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$-\text{SO}_2\text{R}^7$ ,  $-\text{SR}^7$ ,  $-\text{N}(\text{R}^7)_2$ ,  $-\text{CON}(\text{R}^7)_2$ ,  $-\text{SO}_2\text{N}(\text{R}^7)_2$ ,  $-\text{OC}(=\text{O})\text{R}^7$ ,  $-\text{N}(\text{R}^7)\text{COR}^7$ ,  
 $-\text{N}(\text{R}^7)\text{CO}_2(\text{optionally substituted C}_{1-6} \text{ aliphatic})$ ,  $-\text{N}(\text{R}^7)\text{N}(\text{R}^7)_2$ ,  $-\text{C}=\text{NN}(\text{R}^7)_2$ ,  $-\text{C}=\text{N}-\text{OR}$ ,  
 $-\text{NHOR}^7$ ,  $-\text{N}(\text{R}^7)\text{CON}(\text{R}^7)_2$ ,  $-\text{N}(\text{R}^7)\text{SO}_2\text{N}(\text{R}^7)_2$ ,  $-\text{N}(\text{R}^7)\text{SO}_2\text{R}^7$ , or  $-\text{OC}(=\text{O})\text{N}(\text{R}^7)_2$ ,  
wherein each occurrence of  $\text{R}^7$  is independently hydrogen, an optionally substituted  
group selected from aliphatic, heteroaliphatic, aryl or heteroaryl, or two occurrences of  
 $\text{R}^7$  on the same nitrogen atom are taken together with the nitrogen atom to form an  
optionally substituted group selected from a 5-8 membered heterocyclic or 5-8 membered  
heteroaryl ring.

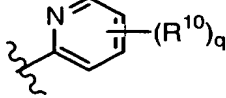
18. (Original) The compound of claim 17 wherein each occurrence of  $\text{R}^8$  is  
independently -halo,  $-\text{R}^7$ ,  $-\text{OR}^7$ ,  $-\text{COR}^7$ ,  $-\text{CO}_2\text{R}^7$ ,  $-\text{CON}(\text{R}^7)_2$ ,  $-\text{O}(\text{C}=\text{O})\text{N}(\text{R}^7)_2$ ,  $-\text{CN}$ ,  
 $-\text{O}(\text{CH}_2)_{2-4}\text{N}(\text{R}^7)_2$ ,  $-\text{O}(\text{CH}_2)_{2-4}\text{R}^7$ ,  $-\text{NO}_2$ ,  $-\text{N}(\text{R}^7)_2$ ,  $-\text{NR}^7\text{COR}^7$ ,  $-\text{NR}^7\text{SO}_2\text{R}^7$ ,  $-\text{SO}_2\text{N}(\text{R}^7)_2$   
wherein each occurrence of  $\text{R}^7$  is independently hydrogen, an optionally substituted  
group selected from aliphatic, heteroaliphatic, aryl or heteroaryl, or two occurrences of  
 $\text{R}^7$  on the same nitrogen atom are taken together with the nitrogen atom to form an  
optionally substituted group selected from a 5-8 membered heterocyclic or 5-8 membered  
heteroaryl ring.

19. (Original) The compound of claim 4, wherein Y is an optionally substituted  
heteroaryl moiety.

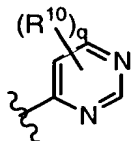
20. (Currently amended) The compound of claim 4, wherein Y is selected from one  
of the following heteroaryl moieties a-y:



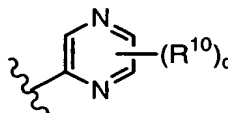
a



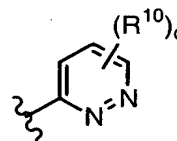
b



c

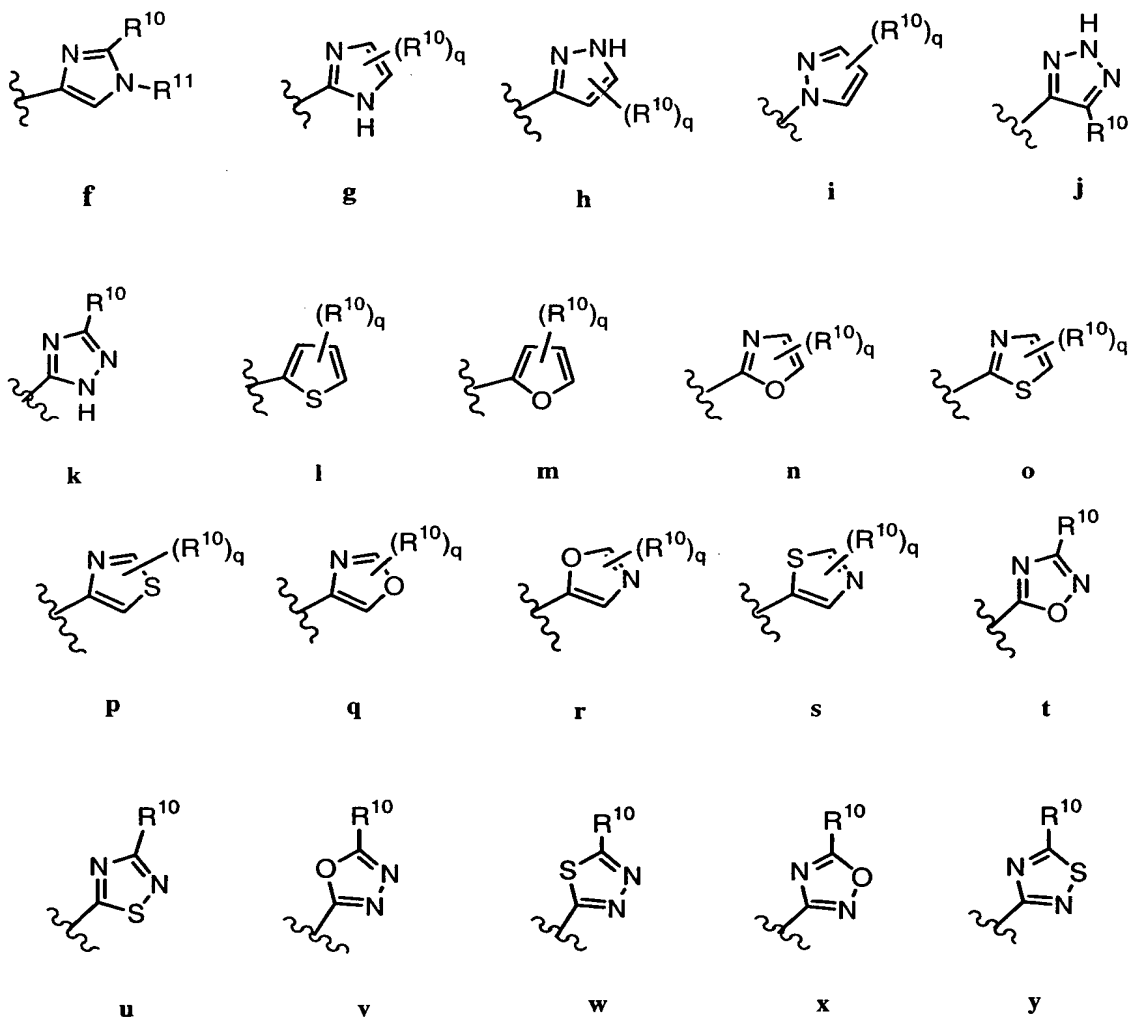


d



e

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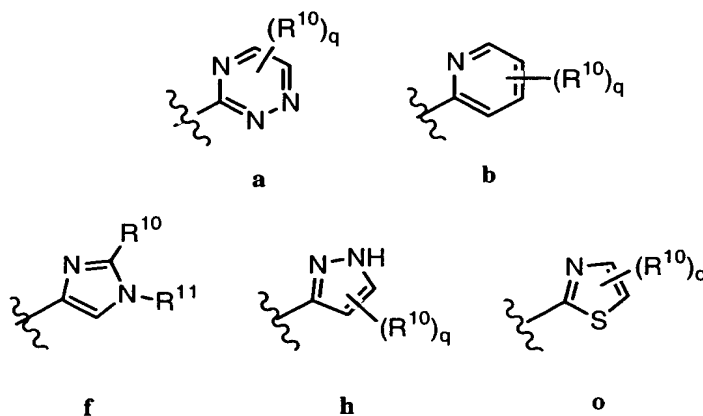


wherein q is 0-4,  $R^{10}$  is -R, ~~wherein R is defined generally above and in classes and subclasses herein~~, and wherein each occurrence of  $R^{11}$  is independently hydrogen, - $R'$ , - $COR'$ , - $CO_2(R')$ , - $CON(R')_2$ , or - $SO_2R'$ , wherein each occurrence of  $R'$  is independently hydrogen, an optionally substituted group selected from aliphatic, heteroaliphatic, aryl or heteroaryl, or two occurrences of  $R'$  on the same nitrogen atom are taken together with the nitrogen to form an optionally substituted group selected from a 5-8 membered heterocyclic or 5-8 membered heteroaryl ring.

21. (Currently amended) The compound of claim 20, wherein Y is one of the

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following heteroaryl moieties:



wherein  $q$  is 0-4,  $R^{10}$  is  $-R$ , wherein  $R$  is defined generally above and in classes and subclasses herein, and wherein each occurrence of  $R^{11}$  is independently hydrogen,  $-R'$ ,  $-COR'$ ,  $-CO_2(R')$ ,  $-CON(R')_2$ , or  $-SO_2R'$ , wherein each occurrence of  $R'$  is independently hydrogen, optionally substituted group selected from aliphatic, heteroaliphatic, aryl or heteroaryl, or two occurrences of  $R'$  on the same nitrogen atom are taken together with the nitrogen to form an optionally substituted group selected from a 5-8 membered heterocyclic or 5-8 membered heteroaryl ring.

22. (Original) The compound of claim 20, wherein  $Y$  is a pyrazole moiety, **h**.

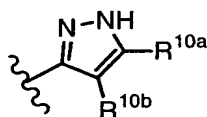
23. (Original) The compound of claim 20, wherein each  $R^{10}$  is independently hydrogen,  $C_{1-4}$ aliphatic, alkoxy carbonyl, optionally substituted phenyl, hydroxyalkyl, alkoxyalkyl, aminocarbonyl, mono- or dialkylaminocarbonyl, aminoalkyl, alkylaminoalkyl, dialkylaminoalkyl, phenylaminocarbonyl, or (N-heterocycle)carbonyl.

24. (Original) The compound of claim 20, wherein each occurrence of  $R^{10}$  is independently methyl, cyclopropyl, ethyl, isopropyl, propyl, t-butyl, cyclopentyl, phenyl,  $CO_2H$ ,  $CO_2CH_3$ ,  $CH_2OH$ ,  $CH_2OCH_3$ ,  $CH_2CH_2CH_2OH$ ,  $CH_2CH_2CH_2OCH_3$ ,  $CH_2CH_2CH_2OCH_2Ph$ ,  $CH_2CH_2CH_2NH_2$ ,  $CH_2CH_2CH_2NHCOOC(CH_3)_3$ ,  $CONHCH(CH_3)_2$ ,  $CONHCH_2CH=CH_2$ ,  $CONHCH_2CH_2OCH_3$ ,  $CONHCH_2Ph$ ,

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CONH(cyclohexyl), CON(Et)<sub>2</sub>, CON(CH<sub>3</sub>)CH<sub>2</sub>Ph, CONH(n-C<sub>3</sub>H<sub>7</sub>),  
CON(Et)CH<sub>2</sub>CH<sub>2</sub>CH<sub>3</sub>, CONHCH<sub>2</sub>CH(CH<sub>3</sub>)<sub>2</sub>, CON(n-C<sub>3</sub>H<sub>7</sub>)<sub>2</sub>, CO(3-  
methoxymethylpyrrolidin-1-yl), CONH(3-tolyl), CONH(4-tolyl), CONHCH<sub>3</sub>,  
CO(morpholin-1-yl), CO(4-methylpiperazin-1-yl), CONHCH<sub>2</sub>CH<sub>2</sub>OH, CONH<sub>2</sub>, or  
CO(piperidin-1-yl).

25. (Original) The compound of claim 20, wherein, Y is a pyrazole moiety, **h'**,  
wherein the pyrazole is substituted with two occurrences of R<sup>10</sup> (R<sup>10a</sup> and R<sup>10b</sup>)

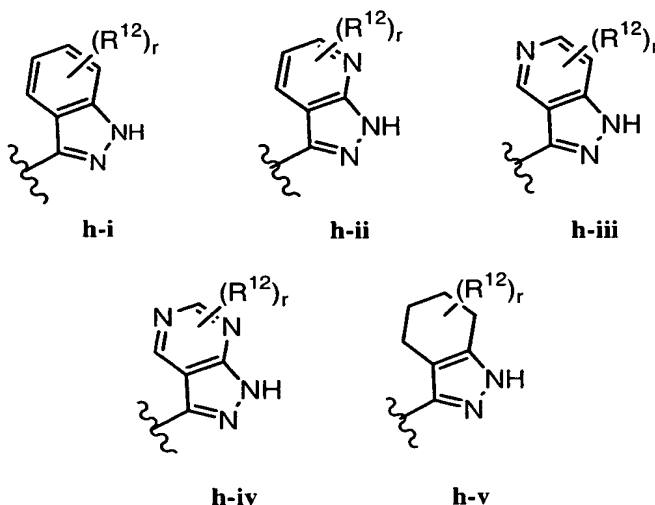


**h'**

wherein R<sup>10a</sup> is hydrogen, C<sub>1-4</sub>aliphatic, alkoxycarbonyl, optionally substituted phenyl, hydroxyalkyl, alkoxyalkyl, aminocarbonyl, mono- or dialkylaminocarbonyl, aminoalkyl, alkylaminoalkyl, dialkylaminoalkyl, phenylaminocarbonyl, and (N-heterocycle)carbonyl; and R<sup>10b</sup> is hydrogen.

26. (Currently amended) The compound of claim [[20]] 25, wherein ~~two occurrences of R<sup>10</sup> ( R<sup>10a</sup> and R<sup>10b</sup> as depicted in formula **h'** )~~ taken together ~~may~~ represent a substituted or unsubstituted cycloaliphatic, cycloheteroaliphatic, aryl or heteroaryl moiety and comprises one of the following groups:

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wherein  $r$  is 0-4 and  $R^{12}$  is hydrogen, -halo,  $-N(R^7)_2$ ,  $-C_{1-3}$  alkyl,  $-C_{1-3}$  haloalkyl,  $-NO_2$ ,  $-O(C_{1-3}$  alkyl),  $-CO_2(C_{1-3}$  alkyl),  $-CN$ ,  $-SO_2(C_{1-3}$  alkyl),  $-SO_2NH_2$ ,  $-OC(O)NH_2$ ,  $-NH_2SO_2(C_{1-3}$  alkyl),  $-NHC(O)(C_{1-3}$  alkyl),  $-C(O)NH_2$ , and  $-CO(C_{1-3}$  alkyl), wherein the  $(C_{1-3}$  alkyl) is most preferably methyl, wherein each occurrence of  $R^7$  is independently hydrogen, an optionally substituted group selected from aliphatic, heteroaliphatic, aryl or heteroaryl, or two occurrences of  $R^7$  on the same nitrogen atom are taken together with the nitrogen atom to form an optionally substituted group selected from a 5-8 membered heterocyclic or 5-8 membered heteroaryl ring.

27. (Original) The compound of claim 4, wherein when  $R^3$  is  $-Q^1-A-Q^2-Y$ ,  $R^4$  is hydrogen,  $C_{1-3}$ aliphatic, hydroxy, hydroxyalkyl, alkoxy, amino, aminoalkyl, mono- or di-alkylamino, mono- or di-alkylaminoalkyl, or optionally substituted phenyl.

28. (Original) The compound of claim 27, wherein  $R^4$  is hydrogen, methyl, ethyl, cyclopropyl, hydroxy, phenyl or  $-CH_2NH_2$ .

29. (Currently amended) The compound of claim 4, wherein when  $R^4$  is  $-Q^1-A-Q^2-Y$ ,  $R^3$  is preferably hydrogen,  $C_{1-3}$ aliphatic, hydroxy, hydroxyalkyl, alkoxy, amino, aminoalkyl, mono- or di-alkylamino, mono- or di-alkylaminoalkyl, or optionally

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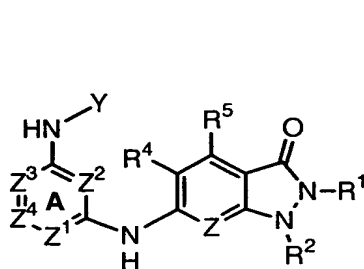
substituted phenyl.

30. (Currently amended) The compound of claim [[27]] 29, wherein  $R^3$  is hydrogen, methyl, ethyl, cyclopropyl, hydroxy, phenyl or  $-CH_2NH_2$ .

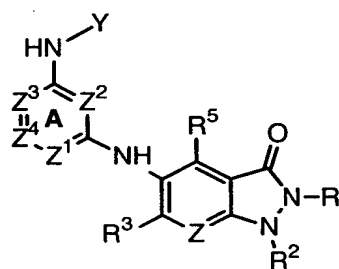
31. (Original) The compound of claim 4, wherein  $R^5$  is hydrogen, halogen,  $-NO_2$ ,  $-CN$ , hydroxy, optionally substituted  $C_{1-3}$ alkyl, optionally substituted alkoxy,  $-SO_2NH_2$ , or  $-C(O)alkyl$ .

32. (Original) The compound of claim 31 wherein  $R^5$  is  $Cl$ ,  $CF_3$ ,  $OCF_3$ ,  $CH_3$ ,  $-CN$ ,  $-SO_2NH_2$  or  $-C(O)Me$ .

33. (Original) The compound of claim 4, wherein  $Q^1$  is  $NH$  and  $Q^2$  is  $NH$ , and compounds are defined by the general formula **IIa(i)** or **IIb(i)**:

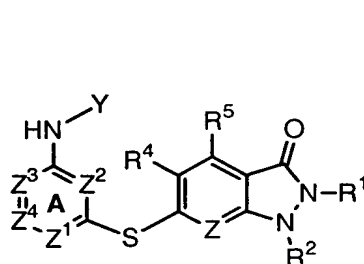


**IIa(i)**

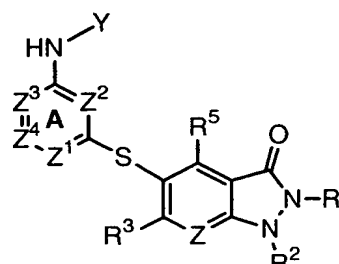


**IIb(i)**

34. (Original) The compound of claim 4, wherein  $Q^1$  is  $S$  and  $Q^2$  is  $NH$ , and compounds are defined by the general formula **IIa(ii)** or **IIb(ii)**:



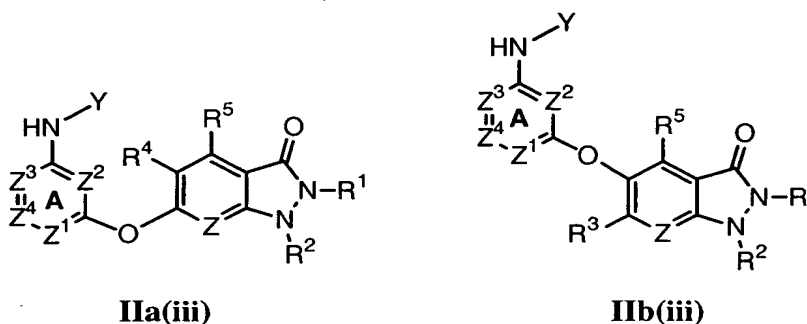
**IIa(ii)**



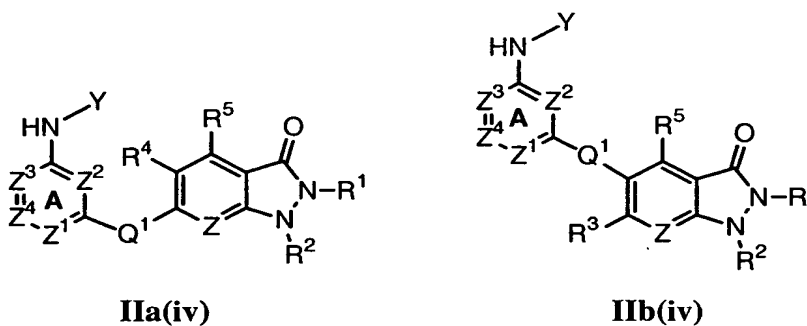
**IIb(ii)**

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35. (Original) The compound of claim 4, wherein  $Q^1$  is O and  $Q^2$  is NH, and compounds are defined by the general formula **IIa(iii)** or **IIb(iii)**:



36. (Previously amended) The compound of claim 4, wherein  $Q^2$  is NH, and compounds are defined by the general formula **IIa(iv)** or **IIb(iv)**:

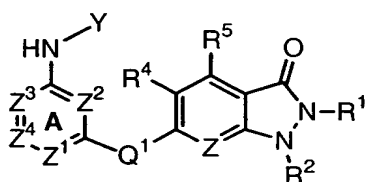


wherein  $Q^1$  is  $-C(R^A)_2$ .

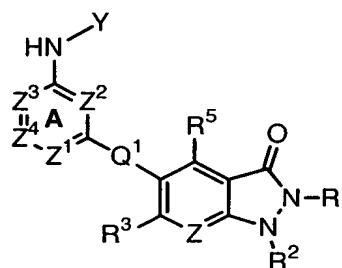
37. (Original) The compound of claim 4, wherein  $Q^2$  is NH and Y is an optionally substituted heteroaryl moiety, and compounds are defined by the general formula **IIa(v)** or **IIb(v)**:



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**IIa(v)**



**IIb(v)**

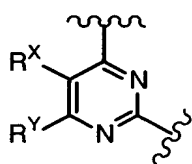
wherein Q<sup>1</sup> is a direct bond.

38. (Currently amended) The compound of any one of claims 33, 34, 35, 36 or 37, wherein:

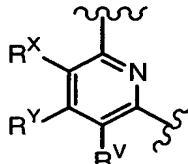
(i) R<sup>1</sup>, R<sup>2</sup>, R<sup>4</sup> and R<sup>5</sup> are each hydrogen and wherein Z is CR<sup>6</sup> [[CHR<sup>6</sup>]] and R<sup>6</sup> is hydrogen; or R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup> and R<sup>5</sup> are each hydrogen and wherein Z is CR<sup>6</sup> [[CHR<sup>6</sup>]] and R<sup>6</sup> is hydrogen;

(ii) ring A is defined according to one of the following groups:

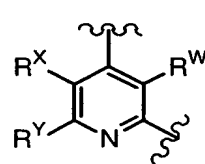
[[a.]] (a) ring A is one of formulas



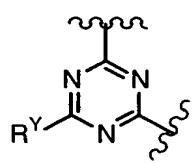
**i**



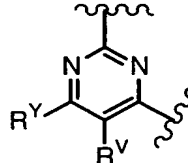
**ii**



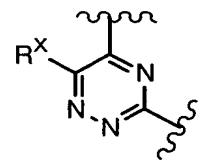
**iii**



**iv**

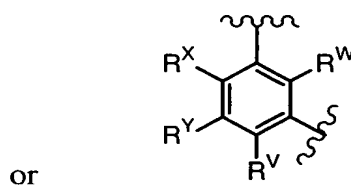
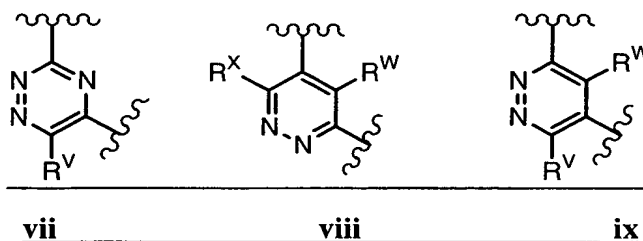


**v**



**vi**

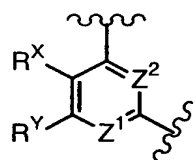
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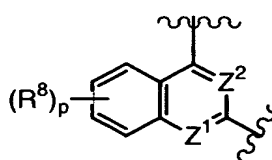
**x;**

**i, ii, iii, iv, v, vi, vii, viii, ix, or x;**

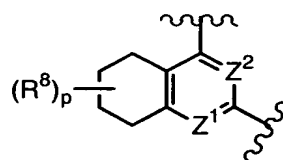
**[[b.]] (b) ring A is one of formulas**



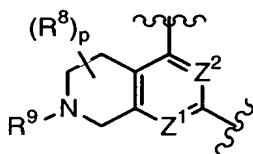
**II-A**



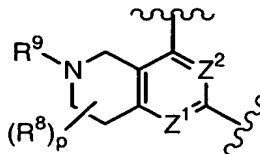
**II-B**



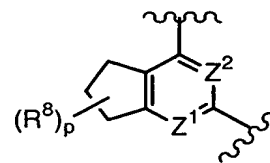
**II-C**



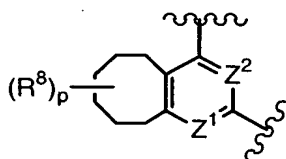
**II-D**



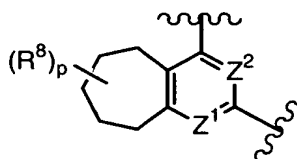
**II-E**



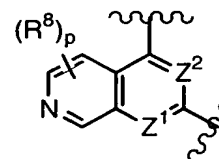
**II-F**



**II-G**

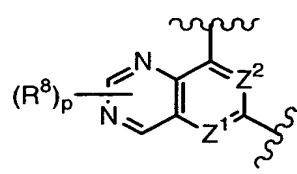
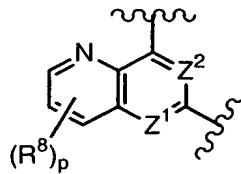
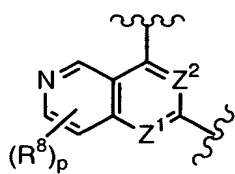


**II-H**



**II-I**

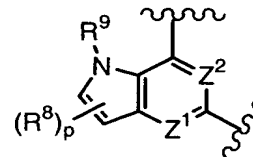
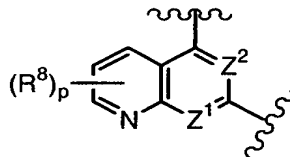
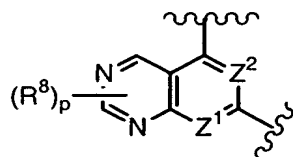
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**II-J**

**II-K**

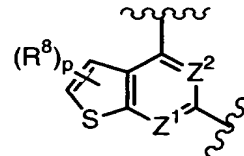
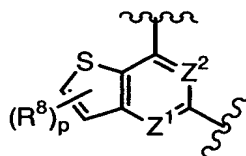
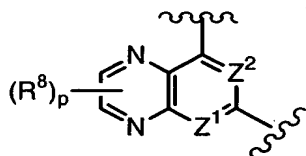
**II-L**



**II-M**

**II-N**

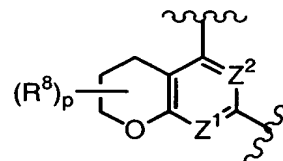
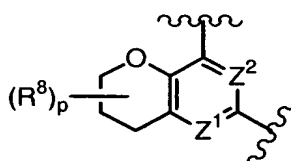
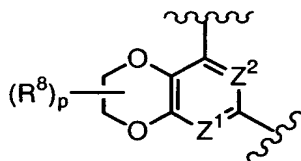
**II-O**



**II-P**

**II-Q**

**II-R**

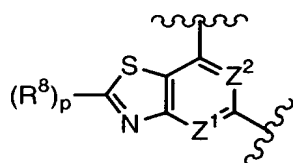


**II-S**

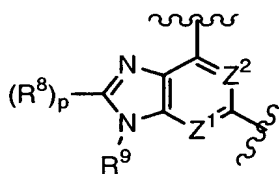
**II-T**

**II-U**

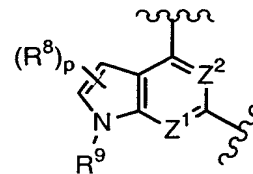
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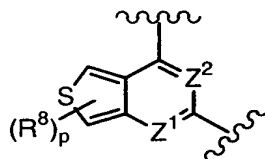
**II-V**



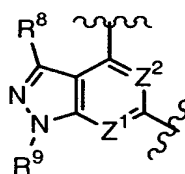
**II-W**



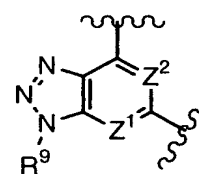
**II-X**



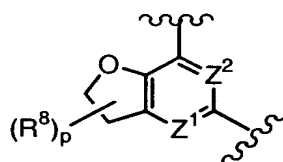
**II-Y**



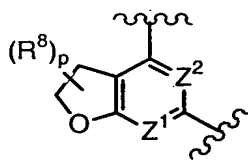
**II-Z**



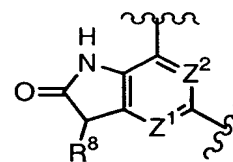
**II-AA**



**II-BB**



**II-CC**



or **II-DD;**

~~II-A, II-B, II-C, II-D, II-E, II-F, II-G, II-H, II-I, II-J, II-K, II-L, II-M, II-N, II-O, II-P, II-Q, II-R, II-S, II-T, II-U, II-V, II-W, II-X, II-Y, II-Z, II-AA, II-BB, II-CC, or II-DD;~~

[[c.]] (c) ring A is one of formulas **II-A, II-B, II-C, II-D, II-E, II-F, II-H, II-I, II-J, II-K, II-L, II-N, II-O, or II-DD;**

[[d.]] (d) ring A is one of formulas **II-A, II-B, II-C, II-D, II-E, II-H, or II-K;**

[[e.]] (e) ring A is one of formulas **II-A or II-B;**

[[f.]] (f) ring A is **II-A** and Z<sup>1</sup> is CR<sup>v</sup> and Z<sup>2</sup> is CR<sup>w</sup>;

[[g.]] (g) ring A is **II-A** and Z<sup>1</sup> is N and Z<sup>2</sup> is N;

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[[h.]] (h) ring A is **II-A** and  $Z^1$  is N and  $Z^2$  is  $CR^W$ ;  
[[i.]] (i) ring A is **II-A** and  $Z^1$  is  $CR^V$  and  $Z^2$  is N;  
[[j.]] (j) ring A is an optionally substituted aryl or heteroaryl moiety of formula **i**, **ii**, **iii** or **x**;

[[k.]] (k) ring A is a monocyclic ring system and  $R^V$  and  $R^W$ , when present, are hydrogen or amino;  $R^X$  groups, when present, is hydrogen, alkyl- or dialkylamino, acetamido, or a  $C_{1-4}$  aliphatic group such as methyl, ethyl, cyclopropyl, or isopropyl;  $R^Y$  groups, when present, is hydrogen, an optionally substituted group selected from hydrogen,  $C_{1-6}$  aliphatic,  $C_{1-6}$  heteroaliphatic, aryl, or heteroaryl,  $-Q_{(n)}N(R^7)_2$ ,  $-Q_{(n)}OR^7$ ,  $-Q_{(n)}SR^7$ ,  $-Q_{(n)}(C=O)O(R^7)$ ,  $-Q_{(n)}C(O)N(R^7)_2$ ,  $-Q_{(n)}NHC(O)R^7$ ,  $-Q_{(n)}NHSO_2R^7$ , or  $-Q_{(n)}SO_2N(R^7)_2$ , wherein n is 0 or 1, and wherein Q is preferably  $-(C(R''))_2-$ , wherein  $R''$  is hydrogen or  $C_{1-3}$ alkyl, and wherein each occurrence of  $R^7$  is independently hydrogen, an optionally substituted group selected from aliphatic, heteroaliphatic, aryl or heteroaryl, or two occurrences of  $R^7$  on the same nitrogen atom are taken together with the nitrogen atom to form an optionally substituted group selected from a 5-8 membered heterocyclic or 5-8 membered heteroaryl ring;

[[l.]] (l) ring A is a monocyclic ring system and  $R^V$ ,  $R^W$  and  $R^X$  groups, when present, are hydrogen or amino;  $R^Y$  groups include groups selected from optionally substituted 5-6 membered heteroaryl or heterocyclyl rings, such as 2-pyridyl, 4-pyridyl, pyrrolidinyl, piperidinyl, morpholinyl, or piperazinyl; optionally substituted aryl or cycloalkyl rings such as phenyl, halogen substituted phenyl, alkoxy substituted phenyl, trifluoromethyl substituted phenyl, nitro substituted phenyl, methyl substituted phenyl; optionally substituted  $C_{1-6}$  aliphatic, such as methyl, ethyl, cyclopropyl, cyclopentyl, cyclohexyl, amino substituted cycloalkyl, acetamido substituted cycloalkyl, isopropyl, or t-butyl; alkoxyalkylamino

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such as methoxyethylamino; alkoxyalkyl such as methoxymethyl or methoxyethyl; aminoalkyl such as aminoethyl, dimethylaminoethyl; alkyl- or dialkylamino such as ethylamino or dimethylamino; alkyl- or dialkylaminoalkoxy such as dimethylaminopropoxy; alkyl- or dialkylaminoalkoxyalkyl such as dimethylaminoethoxymethyl; and acetamido;

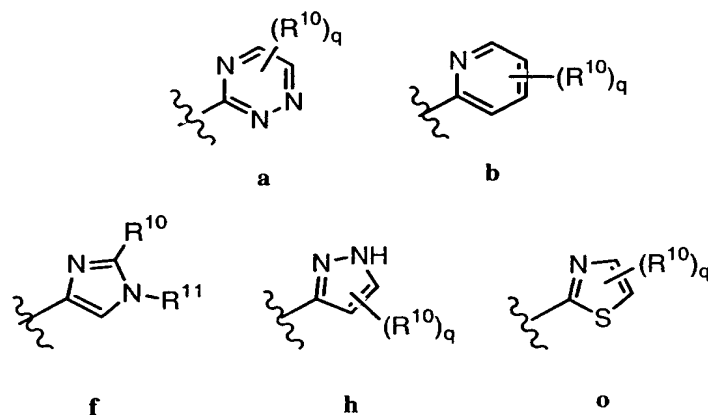
[[m.]] (m) ring A system is a bicyclic ring system and the ring formed when  $R^x$  and  $R^y$  are taken together may be substituted or unsubstituted;

[[n.]] (n) ring A system is a bicyclic ring system formed by  $R^x$  and  $R^y$  taken together and substituted by one or more occurrences of  $R^8$  or  $R^9$ , wherein each occurrence of  $R^8$  is independently  $-R^7$ , halo,  $-O(CH_2)_{2-4}-N(R^7)_2$ ,  $-O(CH_2)_{2-4}-R^7$ ,  $-OR^7$ ,  $-N(R^7)-(CH_2)_{2-4}-N(R^7)_2$ ,  $-N(R^7)-(CH_2)_{2-4}-R^7$ ,  $-C(=O)R^7$ ,  $-CO_2R^7$ ,  $-COCOR^7$ ,  $-NO_2$ ,  $-CN$ ,  $-S(O)R^7$ ,  $-SO_2R^7$ ,  $-SR^7$ ,  $-N(R^7)_2$ ,  $-CON(R^7)_2$ ,  $-SO_2N(R^7)_2$ ,  $-OC(=O)R^7$ ,  $-N(R^7)COR^7$ ,  $-N(R^7)CO_2$ (optionally substituted  $C_{1-6}$  aliphatic),  $-N(R^7)N(R^7)_2$ ,  $-C=NN(R^7)_2$ ,  $-C=N-OR$ ,  $-NHOR^7$ ,  $-N(R^7)CON(R^7)_2$ ,  $-N(R^7)SO_2N(R^7)_2$ ,  $-N(R^7)SO_2R^7$ , or  $-OC(=O)N(R^7)_2$ , wherein each occurrence of  $R^7$  is independently hydrogen, an optionally substituted group selected from aliphatic, heteroaliphatic, aryl or heteroaryl, or two occurrences of  $R^7$  on the same nitrogen atom are taken together with the nitrogen atom to form an optionally substituted group selected from a 5-8 membered heterocyclic or 5-8 membered heteroaryl ring; and each occurrence of  $R^9$  is independently hydrogen,  $-R'$ ,  $-COR'$ ,  $-CO_2(R')$ ,  $-CON(R')_2$ , or  $-SO_2R'$ , wherein each occurrence of  $R'$  is independently hydrogen, an optionally substituted group selected from aliphatic, heteroaliphatic, aryl or heteroaryl, or two occurrences of  $R'$  on the same nitrogen atom are taken together with the nitrogen to form an optionally substituted group selected from a 5-8 membered heterocyclic or 5-8 membered heteroaryl ring,

(iii) Y is defined according to one of the following groups:

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[[a.]] (a) Y is an optionally substituted heteroaryl moiety;  
[[b.]] (b) Y is selected from one of the heteroaryl moieties **a-y**;  
[[c.]] (c) Y is selected from one of the following heteroaryl moieties:



wherein  $q$  is 0-4,  $R^{10}$  is  $-R$ , wherein  $-R$  is defined generally above and in classes and subclasses herein, and wherein each occurrence of  $R^{11}$  is independently hydrogen,  $-R'$ ,  $-COR'$ ,  $-CO_2(R')$ ,  $-CON(R')_2$ , or  $-SO_2R'$ , wherein each occurrence of  $R'$  is independently hydrogen, an optionally substituted group selected from aliphatic, heteroaliphatic, aryl or heteroaryl, or two occurrences of  $R'$  on the same nitrogen atom are taken together with the nitrogen to form an optionally substituted group selected from a 5-8 membered heterocyclic or 5-8 membered heteroaryl ring;

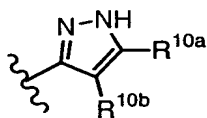
[[d.]] (d) Y is a pyrazole moiety, **h**;

[[e.]] (e) Y is one of **a**, **b**, **f**, **h** or **o**, optionally substituted with one or more  $R^{10}$  groups, wherein each occurrence of  $R^{10}$  is independently hydrogen,  $C_{1-4}$ aliphatic, alkoxycarbonyl, optionally substituted phenyl, hydroxyalkyl, alkoxyalkyl, aminocarbonyl, mono- or dialkylaminocarbonyl, aminoalkyl, alkylaminoalkyl, dialkylaminoalkyl, phenylaminocarbonyl, and (N-heterocycle)carbonyl;

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[[f.]] (f) Y is one of **a**, **b**, **f**, **h** or **o**, optionally substituted with one or more  $R^{10}$  groups, wherein each occurrence of  $R^{10}$  is independently hydrogen, methyl, cyclopropyl, ethyl, isopropyl, propyl, t-butyl, cyclopentyl, phenyl,  $CO_2H$ ,  $CO_2CH_3$ ,  $CH_2OH$ ,  $CH_2OCH_3$ ,  $CH_2CH_2CH_2OH$ ,  $CH_2CH_2CH_2OCH_3$ ,  $CH_2CH_2CH_2OCH_2Ph$ ,  $CH_2CH_2CH_2NH_2$ ,  $CH_2CH_2CH_2NHCOOC(CH_3)_3$ ,  $CONHCH(CH_3)_2$ ,  $CONHCH_2CH=CH_2$ ,  $CONHCH_2CH_2OCH_3$ ,  $CONHCH_2Ph$ ,  $CONH(cyclohexyl)$ ,  $CON(Et)_2$ ,  $CON(CH_3)CH_2Ph$ ,  $CONH(n-C_3H_7)$ ,  $CON(Et)CH_2CH_2CH_3$ ,  $CONHCH_2CH(CH_3)_2$ ,  $CON(n-C_3H_7)_2$ ,  $CO(3-methoxymethylpyrrolidin-1-yl)$ ,  $CONH(3-tolyl)$ ,  $CONH(4-tolyl)$ ,  $CONHCH_3$ ,  $CO(morpholin-1-yl)$ ,  $CO(4-methylpiperazin-1-yl)$ ,  $CONHCH_2CH_2OH$ ,  $CONH_2$ , and  $CO(piperidin-1-yl)$ .

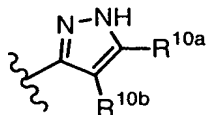
[[g.]] (g) Y is a pyrazole moiety, **h'**, wherein the pyrazole is substituted with ~~two occurrences of  $R^{10}$~~  ( $R^{10a}$  and  $R^{10b}$  ~~as depicted~~),



**h'**

wherein each occurrence of  $R^{10a}$  is hydrogen,  $C_{1-4}$ aliphatic, alkoxy carbonyl, optionally substituted phenyl, hydroxyalkyl, alkoxyalkyl, aminocarbonyl, mono- or dialkylaminocarbonyl, aminoalkyl, alkylaminoalkyl, dialkylaminoalkyl, phenylaminocarbonyl, and (N-heterocycle)carbonyl, and  $R^{10b}$  is hydrogen;

[[h.]] (h) Y is a pyrazole moiety, **h'**, wherein the pyrazole is substituted with ~~two occurrences of  $R^{10}$~~  ( $R^{10a}$  and  $R^{10b}$  ~~as depicted~~),



**h'**

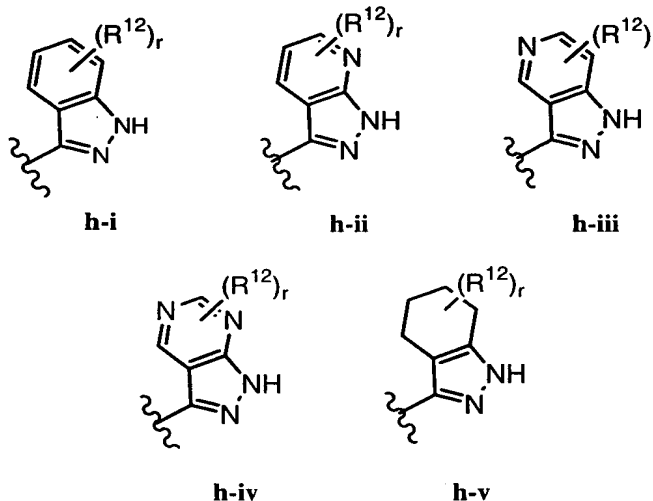


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wherein each occurrence of  $R^{10a}$  is hydrogen, methyl, cyclopropyl, ethyl, isopropyl, propyl, t-butyl, cyclopentyl, phenyl,  $CO_2H$ ,  $CO_2CH_3$ ,  $CH_2OH$ ,  $CH_2OCH_3$ ,  $CH_2CH_2CH_2OH$ ,  $CH_2CH_2CH_2OCH_3$ ,  $CH_2CH_2CH_2OCH_2Ph$ ,  $CH_2CH_2CH_2NH_2$ ,  $CH_2CH_2CH_2NHCOOC(CH_3)_3$ ,  $CONHCH(CH_3)_2$ ,  $CONHCH_2CH=CH_2$ ,  $CONHCH_2CH_2OCH_3$ ,  $CONHCH_2Ph$ ,  $CONH(cyclohexyl)$ ,  $CON(Et)_2$ ,  $CON(CH_3)CH_2Ph$ ,  $CONH(n-C_3H_7)$ ,  $CON(Et)CH_2CH_2CH_3$ ,  $CONHCH_2CH(CH_3)_2$ ,  $CON(n-C_3H_7)_2$ ,  $CO(3-methoxymethylpyrrolidin-1-yl)$ ,  $CONH(3-tolyl)$ ,  $CONH(4-tolyl)$ ,  $CONHCH_3$ ,  $CO(morpholin-1-yl)$ ,  $CO(4-methylpiperazin-1-yl)$ ,  $CONHCH_2CH_2OH$ ,  $CONH_2$ , and  $CO(piperidin-1-yl)$ , and  $R^{10b}$  is hydrogen;

[[i.]] (i) Y is heteroaryl moiety substituted by at least two occurrences of  $R^{10}$  and where two occurrences of  $R^{10}$  taken together may represent an optionally substituted group selected from cycloaliphatic, cycloheteroaliphatic, aryl or heteroaryl;

[[j.]] (j) Y represents one of the following heteroaryl moieties:



wherein  $r$  is 0-4 and  $R^{12}$  is hydrogen, -halo,  $-N(R^7)_2$ ,  $-C_{1-3}$  alkyl,  $-C_{1-3}$  haloalkyl,  $-NO_2$ ,  $-O(C_{1-3}$  alkyl),  $-CO_2(C_{1-3}$  alkyl),  $-CN$ ,  $-SO_2(C_{1-3}$  alkyl),  $-SO_2NH_2$ ,  $-OC(O)NH_2$ ,  $-NH_2SO_2(C_{1-3}$  alkyl),  $-NHC(O)(C_{1-3}$  alkyl),  $-C(O)NH_2$ , and  $-CO(C_{1-3}$  alkyl), wherein the  $(C_{1-3}$  alkyl) is most preferably methyl;

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(iv) for compounds of formula **IIa(i)**,  $R^4$  is defined according to one of the following groups:

[[a.]] (a)  $R^4$  is hydrogen,  $C_{1-3}$ aliphatic, hydroxy, hydroxyalkyl, alkoxy, amino, aminoalkyl, mono- or di- alkylamino, mono- or di-alkylaminoalkyl, or optionally substituted phenyl, or

[[b.]] (b)  $R^4$  is hydrogen, methyl, ethyl, cyclopropyl, hydroxy, phenyl or  $-CH_2NH_2$ ;

(v) for compounds of formula **IIb(i)**,  $R^3$  is defined according to one of the following groups:

[[a.]] (a)  $R^3$  is hydrogen,  $C_{1-3}$ aliphatic, hydroxy, hydroxyalkyl, alkoxy, amino, aminoalkyl, mono- or di- alkylamino, mono- or di-alkylaminoalkyl, or optionally substituted phenyl, or

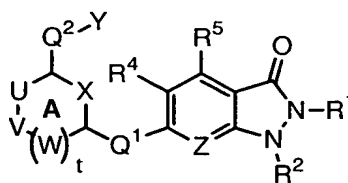
[[b.]] (b)  $R^3$  is hydrogen, methyl, ethyl, cyclopropyl, hydroxy, phenyl or  $-CH_2NH_2$ ; and

(vi)  $R^5$  is defined according to one of the following groups:

[[a.]] (a) hydrogen, halogen,  $-NO_2$ ,  $-CN$ , hydroxy, optionally substituted  $C_{1-3}$ alkyl, optionally substituted alkoxy,  $-SO_2NH_2$ , or  $-C(O)alkyl$ , or

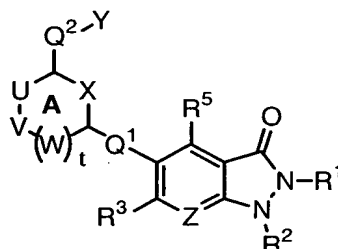
[[b.]] (b)  $R^5$  is hydrogen, Cl,  $CF_3$ ,  $OCF_3$ ,  $CH_3$ ,  $-CN$ ,  $-SO_2NH_2$  or  $-C(O)Me$ .

39. (Currently amended) The compound of claim 1, wherein either of  $R^3$  or  $R^4$  is  $-Q^1-A-Q^2-Y$ , wherein A is an optionally substituted cycloaliphatic or heterocycloaliphatic moiety and compounds have the general formula **IIIa** or **IIIb**:



**IIIa**

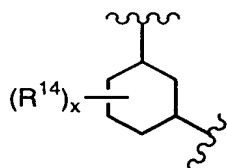
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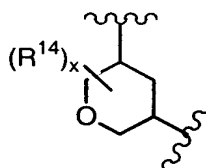
**IIIb**

wherein U is  $\text{NR}^{13}$ ,  $\text{C}(\text{R}^{14})_2$ , or O; V is  $\text{NR}^{13}$ ,  $\text{C}(\text{R}^{14})_2$ , or O; W is  $\text{NR}^{13}$ ,  $\text{C}(\text{R}^{14})_2$ , or O, and X is  $\text{NR}^{13}$ ,  $\text{C}(\text{R}^{14})_2$ , or O, and t is 0, 1 or 2, wherein each occurrence of  $\text{R}^{13}$  is [[is]] independently hydrogen,  $-\text{R}'$ ,  $-\text{COR}'$ ,  $-\text{CO}_2(\text{R}')$ ,  $-\text{CON}(\text{R}')_2$ , or  $-\text{SO}_2\text{R}'$ , wherein each occurrence of  $\text{R}'$  is independently hydrogen, optionally substituted group selected from  $\text{C}_{1-6}$  aliphatic,  $\text{C}_{1-6}$  heteroaliphatic, aryl or heteroaryl, or two occurrences of  $\text{R}'$  on the same nitrogen atom are taken together with the nitrogen to form an optionally substituted group selected from a 5-8 membered heterocyclic or 5-8 membered heteroaryl ring; and wherein each occurrence of  $\text{R}^{14}$  is independently  $-\text{R}$ , with the proviso that when any one of U, V, W, or X is O or  $\text{NR}^{13}$ , an adjacent group U, V, W or X is  $\text{C}(\text{R}^{14})_2$ .

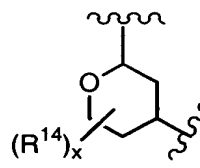
40. (Original) The compound of claim 39, wherein ring A is selected from the following group:



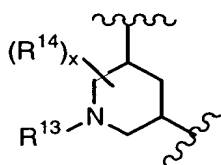
**xi**



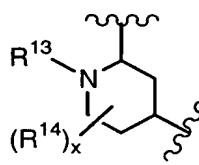
**xii**



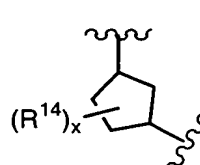
**xiii**



**xiv**



**xv**



**xvi**

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wherein  $R^{13}$  is hydrogen,  $-R'$ ,  $-\text{COR}'$ ,  $-\text{CO}_2(R')$ ,  $-\text{CON}(R')_2$ , or  $-\text{SO}_2R'$ , wherein each occurrence of  $R'$  is independently hydrogen, optionally substituted group selected from aliphatic, heteroaliphatic, aryl or heteroaryl, or two occurrences of  $R'$  on the same nitrogen atom are taken together with the nitrogen to form an optionally substituted group selected from a 5-8 membered heterocyclic or heteroaryl ring;  $R^{14}$  is oxo or  $-R$ ; and  $x$  is 0-4.

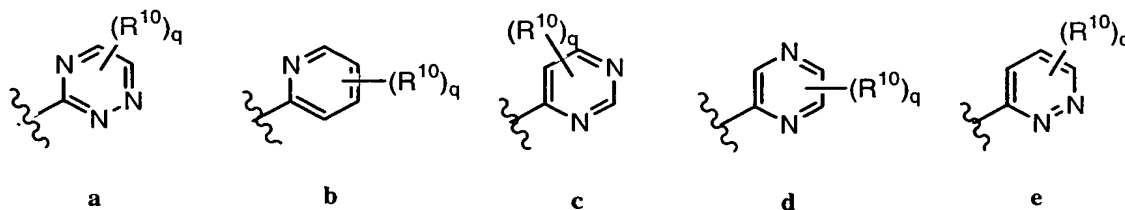
41. (Original) The compound of claim 40, wherein  $x$  is 0 or 1 and  $R^{14}$  is -halo,  $-\text{N}(R^7)_2$ ,  $-\text{C}_{1-3}$  alkyl,  $-\text{C}_{1-3}$  haloalkyl,  $-\text{NO}_2$ ,  $-\text{O}(\text{C}_{1-3}$  alkyl),  $-\text{CO}_2(\text{C}_{1-3}$  alkyl),  $-\text{CN}$ ,  $-\text{SO}_2(\text{C}_{1-3}$  alkyl),  $-\text{SO}_2\text{NH}_2$ ,  $-\text{OC}(\text{O})\text{NH}_2$ ,  $-\text{NH}_2\text{SO}_2(\text{C}_{1-3}$  alkyl),  $-\text{NHC}(\text{O})(\text{C}_{1-3}$  alkyl),  $-\text{C}(\text{O})\text{NH}_2$ , and  $-\text{CO}(\text{C}_{1-3}$  alkyl), wherein the  $(\text{C}_{1-3}$  alkyl) is most preferably methyl.

42. (Original) The compound of claim 40, wherein  $R^{13}$  is hydrogen or  $\text{C}_{1-4}$  alkyl.

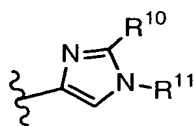
43. (Previously amended) The compound of claim 40, wherein ring A is selected from one of **xi**, **xii** or **xvi** and  $x$  is 0.

44. (Original) The compound of claim 39, wherein Y is an optionally substituted heteroaryl moiety.

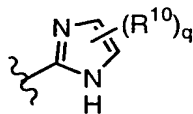
45. (Currently amended) The compound of claim 39, wherein Y is selected from one of the following heteroaryl moieties **a-y**:



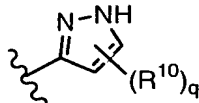
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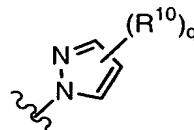
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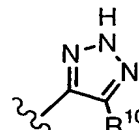
g



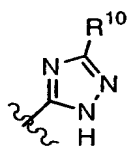
h



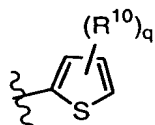
i



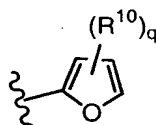
j



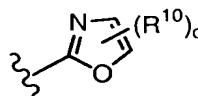
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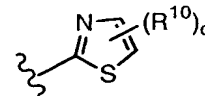
l



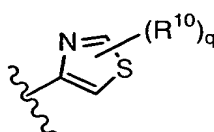
m



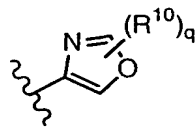
n



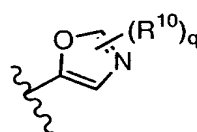
o



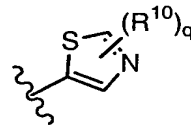
p



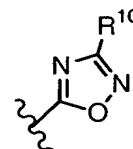
q



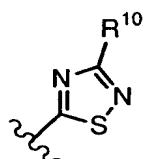
r



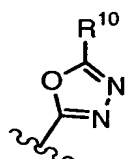
s



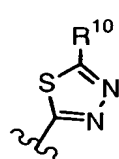
t



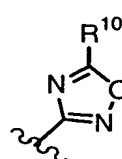
u



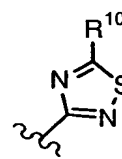
v



w



x

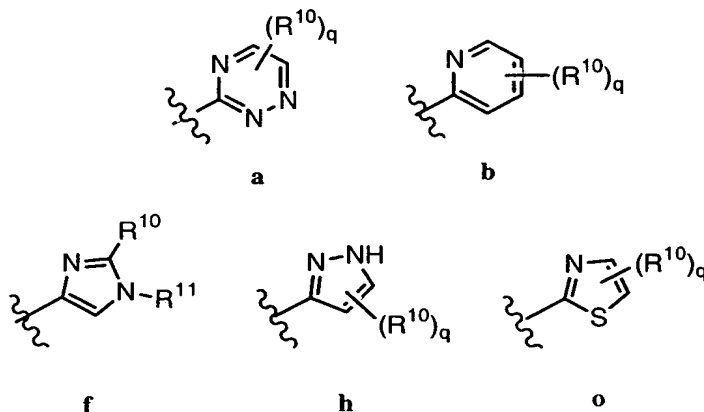


y

wherein q is 0-4,  $R^{10}$  is -R, ~~wherein R is defined generally above and in classes and subclasses herein,~~ and wherein each occurrence of  $R^{11}$  is independently hydrogen, - $R'$ , - $COR'$ , - $CO_2(R')$ , - $CON(R')_2$ , or - $SO_2R'$ , wherein each occurrence of  $R'$  is independently hydrogen, an optionally substituted group selected from aliphatic, heteroaliphatic, aryl or heteroaryl, or two occurrences of  $R'$  on the same nitrogen atom are taken together with the nitrogen to form an optionally substituted group selected from a 5-8 membered heterocyclic or 5-8 membered heteroaryl ring.

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46. (Currently amended) The compound of claim 45, wherein Y is one of the following heteroaryl moieties:



wherein q is 0-4,  $R^{10}$  is -R, ~~wherein R is defined generally above and in classes and subclasses herein~~, and wherein each occurrence of  $R^{11}$  is independently hydrogen, - $R'$ , -COR', -CO<sub>2</sub>( $R'$ ), -CON( $R'$ )<sub>2</sub>, or -SO<sub>2</sub> $R'$ , wherein each occurrence of  $R'$  is independently hydrogen, optionally substituted group selected from aliphatic, heteroaliphatic, aryl or heteroaryl, or two occurrences of  $R'$  on the same nitrogen atom are taken together with the nitrogen to form an optionally substituted group selected from a 5-8 membered heterocyclic or 5-8 membered heteroaryl ring.

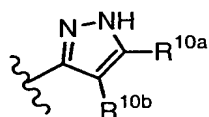
47. (Original) The compound of claim 45, wherein each  $R^{10}$  is independently hydrogen, C<sub>1-4</sub>aliphatic, alkoxy carbonyl, optionally substituted phenyl, hydroxyalkyl, alkoxyalkyl, aminocarbonyl, mono- or dialkylaminocarbonyl, aminoalkyl, alkylaminoalkyl, dialkylaminoalkyl, phenylaminocarbonyl, or (N-heterocycle)carbonyl.

48. (Original) The compound of claim 45, wherein each occurrence of  $R^{10}$  is independently methyl, cyclopropyl, ethyl, isopropyl, propyl, t-butyl, cyclopentyl, phenyl, CO<sub>2</sub>H, CO<sub>2</sub>CH<sub>3</sub>, CH<sub>2</sub>OH, CH<sub>2</sub>OCH<sub>3</sub>, CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>OH, CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>OCH<sub>3</sub>, CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>OCH<sub>2</sub>Ph, CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>NH<sub>2</sub>, CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>NHCOOC(CH<sub>3</sub>)<sub>3</sub>, CONHCH(CH<sub>3</sub>)<sub>2</sub>, CONHCH<sub>2</sub>CH=CH<sub>2</sub>, CONHCH<sub>2</sub>CH<sub>2</sub>OCH<sub>3</sub>, CONHCH<sub>2</sub>Ph, CONH(cyclohexyl), CON(Et)<sub>2</sub>, CON(CH<sub>3</sub>)CH<sub>2</sub>Ph, CONH(n-C<sub>3</sub>H<sub>7</sub>),

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CON(Et)CH<sub>2</sub>CH<sub>2</sub>CH<sub>3</sub>, CONHCH<sub>2</sub>CH(CH<sub>3</sub>)<sub>2</sub>, CON(n-C<sub>3</sub>H<sub>7</sub>)<sub>2</sub>, CO(3-methoxymethylpyrrolidin-1-yl), CONH(3-tolyl), CONH(4-tolyl), CONHCH<sub>3</sub>, CO(morpholin-1-yl), CO(4-methylpiperazin-1-yl), CONHCH<sub>2</sub>CH<sub>2</sub>OH, CONH<sub>2</sub>, or CO(piperidin-1-yl).

49. (Currently amended) The compound of claim 45, wherein, Y is a pyrazole moiety, **h'**, wherein the pyrazole is substituted with ~~two occurrences of R<sup>10</sup>~~ (R<sup>10a</sup> and R<sup>10b</sup>, [I])

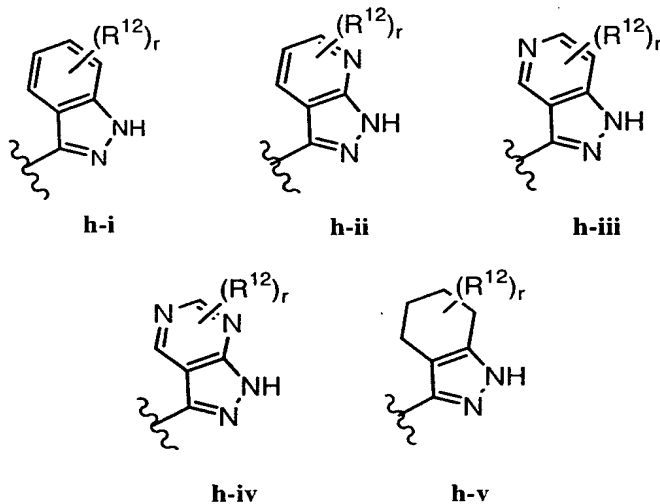


**h'**

wherein R<sup>10a</sup> is hydrogen, C<sub>1-4</sub>aliphatic, alkoxycarbonyl, optionally substituted phenyl, hydroxyalkyl, alkoxyalkyl, aminocarbonyl, mono- or dialkylaminocarbonyl, aminoalkyl, alkylaminoalkyl, dialkylaminoalkyl, phenylaminocarbonyl, and (N-heterocycle)carbonyl; and R<sup>10b</sup> is hydrogen.

50 [[51]]. (Currently amended) The compound of claim 49, wherein ~~two occurrences of R<sup>10</sup>~~ (R<sup>10a</sup> and R<sup>10b</sup> ~~as depicted in formula **h'**~~) taken together may represent a substituted or unsubstituted cycloaliphatic, cycloheteroaliphatic, aryl or heteroaryl moiety and comprises one of the following groups:

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wherein  $r$  is 0-4 and  $R^{12}$  is hydrogen, -halo,  $-N(R^7)_2$ ,  $-C_{1-3}$  alkyl,  $-C_{1-3}$  haloalkyl,  $-NO_2$ ,  $-O(C_{1-3}$  alkyl),  $-CO_2(C_{1-3}$  alkyl),  $-CN$ ,  $-SO_2(C_{1-3}$  alkyl),  $-SO_2NH_2$ ,  $-OC(O)NH_2$ ,  $-NH_2SO_2(C_{1-3}$  alkyl),  $-NHC(O)(C_{1-3}$  alkyl),  $-C(O)NH_2$ , and  $-CO(C_{1-3}$  alkyl), ~~wherein the  $(C_{1-3}$  alkyl) is most preferably methyl~~, wherein each occurrence of  $R^7$  is independently hydrogen, an optionally substituted group selected from aliphatic, heteroaliphatic, aryl or heteroaryl, or two occurrences of  $R^7$  on the same nitrogen atom are taken together with the nitrogen atom to form an optionally substituted group selected from a 5-8 membered heterocyclic or 5-8 membered heteroaryl ring.

51 [[52]]. (Original) The compound of claim 39, wherein when  $R^3$  is  $-Q^1-A-Q^2-Y$ ,  $R^4$  is hydrogen,  $C_{1-3}$ aliphatic, hydroxy, hydroxyalkyl, alkoxy, amino, aminoalkyl, mono- or di- alkylamino, mono- or di- alkylaminoalkyl, or optionally substituted phenyl.

52 [[53]]. (Currently amended) The compound of claim 51 [[52]], wherein  $R^4$  is hydrogen, methyl, ethyl, cyclopropyl, hydroxy, phenyl or  $-CH_2NH_2$ .

53 [[54]]. (Currently amended) The compound of claim 39, wherein when  $R^4$  is  $-Q^1-A-Q^2-Y$ ,  $R^3$  is hydrogen,  $C_{1-3}$ aliphatic, hydroxy, hydroxyalkyl, alkoxy, amino,



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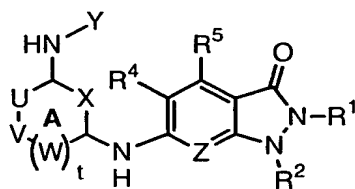
aminoalkyl, mono- or di- alkylamino, mono- or di- alkylaminoalkyl, or optionally substituted phenyl.

54 [[55]]. (Currently amended) The compound of claim 53 [[54]], wherein  $R^3$  is hydrogen, methyl, ethyl, cyclopropyl, hydroxy, phenyl or  $-CH_2NH_2$ .

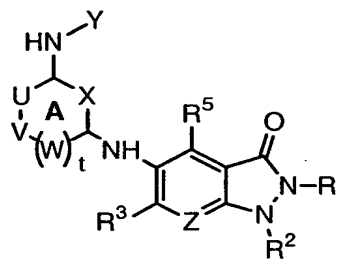
55 [[56]]. (Currently amended) The compound of claim 39, wherein  $R^5$  is hydrogen, halogen,  $-NO_2$ ,  $-CN$ , hydroxy, optionally substituted  $C_{1-3}$ alkyl, optionally substituted alkoxy,  $-SO_2NH_2$ , or  $-C(O)alkyl$ .

56 [[57]]. (Currently amended) The compound of claim 55, [[56]] wherein  $R^5$  is Cl,  $CF_3$ ,  $OCF_3$ ,  $CH_3$ ,  $-CN$ ,  $-SO_2NH_2$  or  $-C(O)Me$ .

57 [[58]]. (Currently amended) The compound of claim 39, wherein  $Q^1$  is NH and  $Q^2$  is NH, and compounds are defined by the general formula **IIIa(i)** or **IIIb(i)**:



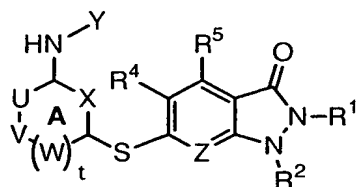
**IIIa(i)**



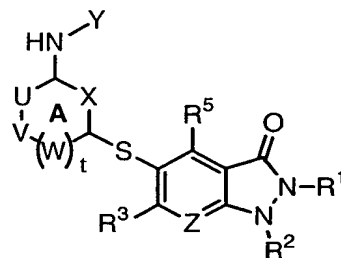
**IIIb(i)**

58 [[59]]. (Currently amended) The compound of claim 39 wherein  $Q^1$  is S, and  $Q^2$  is NH, and compounds are defined by the general formula **IIIa(ii)** or **IIIb(ii)**:

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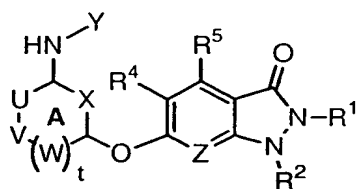


IIIa(ii)

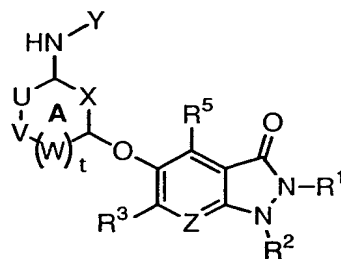


IIIb(ii)

59 [[60]]. (Currently amended) The compound of claim 39 wherein Q<sup>1</sup> is O and Q<sup>2</sup> is NH, and compounds are defined by the general formula IIIa(iii) or IIIb(iii):

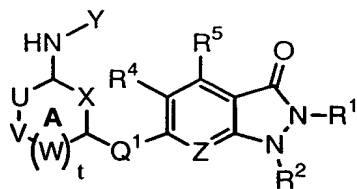


IIIa(iii)

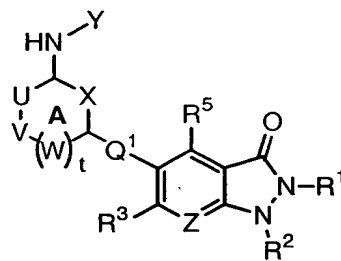


IIIb(iii)

60 [[61]]. (Currently amended) The compound of claim 39, wherein Q<sup>2</sup> is NH, and compounds are defined by the general formula IIIa(iv) or IIIb(iv):



IIIa(iv)

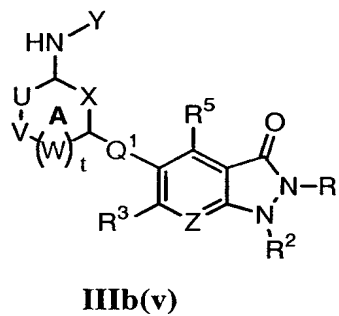
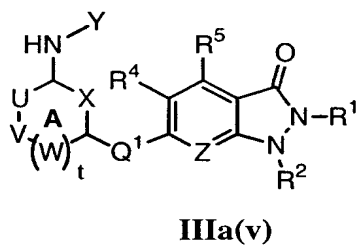


IIIb(iv)

wherein Q<sup>1</sup> is -C(R<sup>A</sup>)<sub>2</sub>-.

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61 [[62]]. (Currently amended) The compound of claim 39, wherein  $Q^2$  is NH, and compounds are defined by the general formula **IIIa(v)** or **IIIb(v)**:



wherein  $Q^1$  is a direct bond.

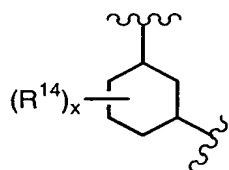
62 [[63]]. (Currently amended) The compound of any one of claims 57, 58, 59, 60, or 61 ~~58, 59, 60, 61, or 62~~ wherein:

(i)  $R^1$ ,  $R^2$ ,  $R^4$  and  $R^5$  are each hydrogen and wherein  $Z$  is  $\underline{CR^6}$   $[[CHR^6]]$  and  $R^6$  is hydrogen; or  $R^1$ ,  $R^2$ ,  $R^3$  and  $R^5$  are each hydrogen and wherein  $Z$  is  $\underline{CR^6}$   $[[CHR^6]]$  and  $R^6$  is hydrogen;

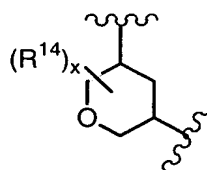
(ii) ring A is defined according to one of the following groups:

[[a.]] (a) ring A is selected from one of the groups:

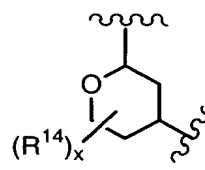
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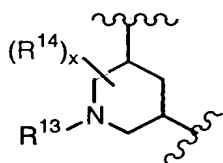
xi



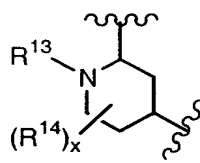
xii



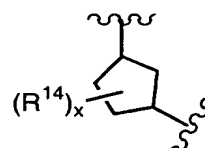
xiii



xiv



xv



xvi

wherein  $R^{13}$  is hydrogen,  $-R'$ ,  $-\text{COR}'$ ,  $-\text{CO}_2(R')$ ,  $-\text{CON}(R')_2$ , or  $-\text{SO}_2R'$ , wherein each occurrence of  $R'$  is independently hydrogen, an optionally substituted group selected from aliphatic, heteroaliphatic, aryl or heteroaryl, or two occurrences of  $R'$  on the same nitrogen atom are taken together with the nitrogen to form an optionally substituted group selected from a 5-8 membered heterocyclic or 5-8 membered heteroaryl ring;  $R^{14}$  is oxo or  $-R$ ; and  $x$  is 0-4; or

[[b.]] (b) ring A is selected from one of **xi**, **xii** or **xvi** and  $x$  is 0 or 1;  $R^{14}$  is -halo,  $-\text{N}(R^7)_2$ ,  $-\text{C}_{1-3}$  alkyl,  $-\text{C}_{1-3}$  haloalkyl,  $-\text{NO}_2$ ,  $-\text{O}(\text{C}_{1-3}$  alkyl),  $-\text{CO}_2(\text{C}_{1-3}$  alkyl),  $-\text{CN}$ ,  $-\text{SO}_2(\text{C}_{1-3}$  alkyl),  $-\text{SO}_2\text{NH}_2$ ,  $-\text{OC}(\text{O})\text{NH}_2$ ,  $-\text{NH}_2\text{SO}_2(\text{C}_{1-3}$  alkyl),  $-\text{NHC}(\text{O})(\text{C}_{1-3}$  alkyl),  $-\text{C}(\text{O})\text{NH}_2$ , and  $-\text{CO}(\text{C}_{1-3}$  alkyl), wherein the  $(\text{C}_{1-3}$  alkyl) is most preferably methyl; and  $R^{13}$  is hydrogen or  $\text{C}_{1-4}$ alkyl;

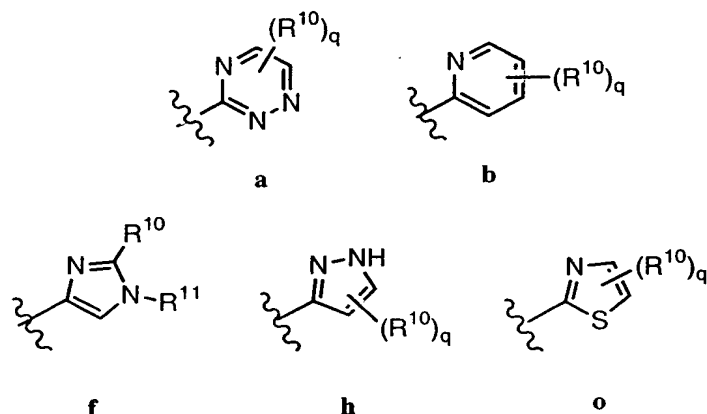
(iii) Y is defined according to one of the following groups:

[[a.]] (a) Y is an optionally substituted heteroaryl moiety;

[[b.]] (b) Y is selected from one of the heteroaryl moieties **a-y**;

[[c.]] (c) Y is selected from one of the following heteroaryl moieties:

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wherein  $q$  is 0-4,  $R^{10}$  is  $-R$ , wherein  $-R$  is defined generally above and in classes and subclasses herein, and wherein each occurrence of  $R^{11}$  is independently hydrogen,  $-R'$ ,  $-COR'$ ,  $-CO_2(R')$ ,  $-CON(R')_2$ , or  $-SO_2R'$ , wherein each occurrence of  $R'$  is independently hydrogen, an optionally substituted group selected from aliphatic, heteroaliphatic, aryl or heteroaryl, or two occurrences of  $R'$  on the same nitrogen atom are taken together with the nitrogen to form an optionally substituted group selected from a 5-8 membered heterocyclic or 5-8 membered heteroaryl ring;

[[c.]] (d)  $Y$  is a pyrazole moiety, **h**;

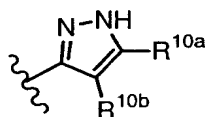
[[d.]] (e)  $Y$  is one of **a**, **b**, **f**, **h** or **o**, optionally substituted with one or more  $R^{10}$  groups, wherein each occurrence of  $R^{10}$  is independently hydrogen,  $C_{1-4}$ aliphatic, alkoxy carbonyl, optionally substituted phenyl, hydroxyalkyl, alkoxyalkyl, aminocarbonyl, mono- or dialkylaminocarbonyl, aminoalkyl, alkylaminoalkyl, dialkylaminoalkyl, phenylaminocarbonyl, and (N-heterocycle)carbonyl;

[[e.]] (f)  $Y$  is one of **a**, **b**, **f**, **h** or **o**, optionally substituted with one or more  $R^{10}$  groups, wherein each occurrence of  $R^{10}$  is independently hydrogen, methyl, cyclopropyl, ethyl, isopropyl, propyl, *t*-butyl, cyclopentyl, phenyl,  $CO_2H$ ,  $CO_2CH_3$ ,  $CH_2OH$ ,  $CH_2OCH_3$ ,  $CH_2CH_2CH_2OH$ ,  $CH_2CH_2CH_2OCH_3$ ,  $CH_2CH_2CH_2OCH_2Ph$ ,

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CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>NH<sub>2</sub>, CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>NHCOOC(CH<sub>3</sub>)<sub>3</sub>, CONHCH(CH<sub>3</sub>)<sub>2</sub>,  
CONHCH<sub>2</sub>CH=CH<sub>2</sub>, CONHCH<sub>2</sub>CH<sub>2</sub>OCH<sub>3</sub>, CONHCH<sub>2</sub>Ph,  
CONH(cyclohexyl), CON(Et)<sub>2</sub>, CON(CH<sub>3</sub>)CH<sub>2</sub>Ph, CONH(n-C<sub>3</sub>H<sub>7</sub>),  
CON(Et)CH<sub>2</sub>CH<sub>2</sub>CH<sub>3</sub>, CONHCH<sub>2</sub>CH(CH<sub>3</sub>)<sub>2</sub>, CON(n-C<sub>3</sub>H<sub>7</sub>)<sub>2</sub>, CO(3-  
methoxymethylpyrrolidin-1-yl), CONH(3-tolyl), CONH(4-tolyl),  
CONHCH<sub>3</sub>, CO(morpholin-1-yl), CO(4-methylpiperazin-1-yl),  
CONHCH<sub>2</sub>CH<sub>2</sub>OH, CONH<sub>2</sub>, and CO(piperidin-1-yl);

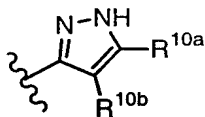
[[f.]] (g) Y is a pyrazole moiety, **h'**, wherein the pyrazole is  
substituted with two occurrences of R<sup>10</sup> (R<sup>10a</sup> and R<sup>10b</sup> as depicted),



**h'**

wherein each occurrence of R<sup>10a</sup> is hydrogen, C<sub>1-4</sub>aliphatic,  
alkoxycarbonyl, optionally substituted phenyl, hydroxyalkyl, alkoxyalkyl,  
aminocarbonyl, mono- or dialkylaminocarbonyl, aminoalkyl,  
alkylaminoalkyl, dialkylaminoalkyl, phenylaminocarbonyl, and (N-  
heterocycle)carbonyl, and R<sup>10b</sup> is hydrogen;

[[g.]] (h) Y is a pyrazole moiety, **h'**, wherein the pyrazole is  
substituted with two occurrences of R<sup>10</sup> (R<sup>10a</sup> and R<sup>10b</sup> as depicted),



**h'**

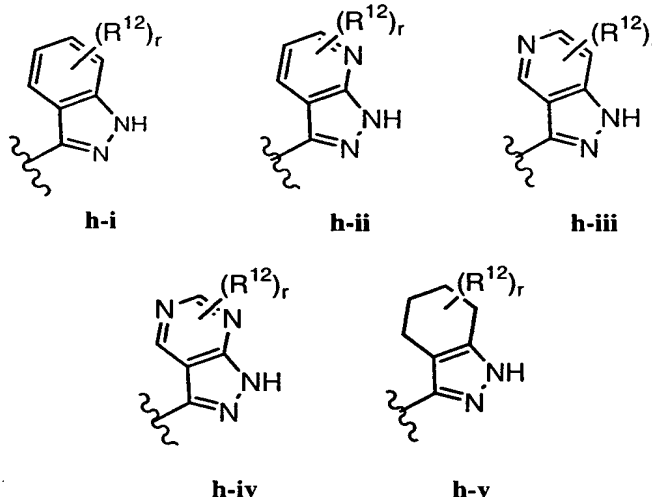
wherein each occurrence of R<sup>10a</sup> is hydrogen, methyl, cyclopropyl, ethyl,  
isopropyl, propyl, t-butyl, cyclopentyl, phenyl, CO<sub>2</sub>H, CO<sub>2</sub>CH<sub>3</sub>, CH<sub>2</sub>OH,  
CH<sub>2</sub>OCH<sub>3</sub>, CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>OH, CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>OCH<sub>3</sub>, CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>OCH<sub>2</sub>Ph,  
CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>NH<sub>2</sub>, CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>NHCOOC(CH<sub>3</sub>)<sub>3</sub>, CONHCH(CH<sub>3</sub>)<sub>2</sub>,  
CONHCH<sub>2</sub>CH=CH<sub>2</sub>, CONHCH<sub>2</sub>CH<sub>2</sub>OCH<sub>3</sub>, CONHCH<sub>2</sub>Ph, CONH(cyclohexyl),

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CON(Et)<sub>2</sub>, CON(CH<sub>3</sub>)CH<sub>2</sub>Ph, CONH(n-C<sub>3</sub>H<sub>7</sub>), CON(Et)CH<sub>2</sub>CH<sub>2</sub>CH<sub>3</sub>, CONHCH<sub>2</sub>CH(CH<sub>3</sub>)<sub>2</sub>, CON(n-C<sub>3</sub>H<sub>7</sub>)<sub>2</sub>, CO(3-methoxymethylpyrrolidin-1-yl), CONH(3-tolyl), CONH(4-tolyl), CONHCH<sub>3</sub>, CO(morpholin-1-yl), CO(4-methylpiperazin-1-yl), CONHCH<sub>2</sub>CH<sub>2</sub>OH, CONH<sub>2</sub>, and CO(piperidin-1-yl, and R<sup>10b</sup> is hydrogen;

[[h.]] (i) Y is heteroaryl moiety substituted by at least two occurrences of R<sup>10</sup> and where two occurrences of R<sup>10</sup> taken together may represent an optionally substituted group selected from cycloaliphatic, cycloheteroaliphatic, aryl or heteroaryl;

[[i.]] (j) Y represents one of the following heteroaryl moieties:



wherein r is 0-4 and R<sup>12</sup> is hydrogen, -halo, -N(R<sup>7</sup>)<sub>2</sub>, -C<sub>1-3</sub> alkyl, -C<sub>1-3</sub> haloalkyl, -NO<sub>2</sub>, -O(C<sub>1-3</sub> alkyl), -CO<sub>2</sub>(C<sub>1-3</sub> alkyl), -CN, -SO<sub>2</sub>(C<sub>1-3</sub> alkyl), -SO<sub>2</sub>NH<sub>2</sub>, -OC(O)NH<sub>2</sub>, -NH<sub>2</sub>SO<sub>2</sub>(C<sub>1-3</sub> alkyl), -NHC(O)(C<sub>1-3</sub> alkyl), -C(O)NH<sub>2</sub>, and -CO(C<sub>1-3</sub> alkyl), wherein the (C<sub>1-3</sub> alkyl) is most preferably methyl;

(iv) R<sup>4</sup> is defined according to one of the following groups:

[[a.]] (a) R<sup>4</sup> is hydrogen, C<sub>1-3</sub>aliphatic, hydroxy, hydroxyalkyl, alkoxy, amino, aminoalkyl, mono- or di- alkylamino, mono- or di-alkylaminoalkyl, or optionally substituted phenyl, or

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[[b.]] (b)  $R^4$  is hydrogen, methyl, ethyl, cyclopropyl, hydroxy, phenyl or -  
 $CH_2NH_2$ ;

(v)  $R^3$  is defined according to one of the following groups:

[[a.]] (a)  $R^3$  is hydrogen,  $C_{1-3}$ aliphatic, hydroxy, hydroxyalkyl, alkoxy, amino, aminoalkyl, mono- or di- alkylamino, mono- or di-alkylaminoalkyl, or optionally substituted phenyl, or

[[b.]] (b)  $R^3$  is hydrogen, methyl, ethyl, cyclopropyl, hydroxy, phenyl or -  
 $CH_2NH_2$ ; and

(vi)  $R^5$  is defined according to one of the following groups:

[[a.]] (a) hydrogen, halogen,  $-NO_2$ ,  $-CN$ , hydroxy, optionally substituted  $C_{1-3}$ alkyl, optionally substituted alkoxy,  $-SO_2NH_2$ , or  $-C(O)alkyl$ , or

[[b.]] (b)  $R^5$  is hydrogen, Cl,  $CF_3$ ,  $OCF_3$ ,  $CH_3$ ,  $-CN$ ,  $-SO_2NH_2$  or -  
 $C(O)Me$ .

63-83 [[64-84]]. (Canceled)

84 [[85]]. (Currently amended) A pharmaceutical composition comprising a compound of claim 1, and a pharmaceutically acceptable carrier, adjuvant, or vehicle.

85 [[86]]. (Canceled)

86 [[87]]. (Currently amended) A method of inhibiting a PRAK, GSK3, ERK2, CDK2, MK2, SRC, SYK, or Aurora-2 family kinase activity in a biological sample comprising the step of contacting said biological sample with:

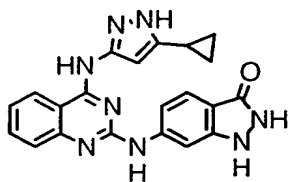
- a) a composition according to claim 84 [[85]]; or
- b) a compound of claim 1.

87-89 [[88-90]]. (Canceled)

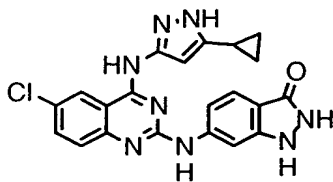
90. (New) The compound according to claim 1 selected from the following:



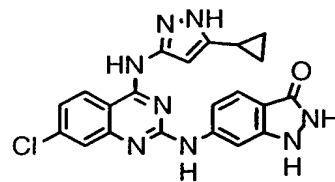
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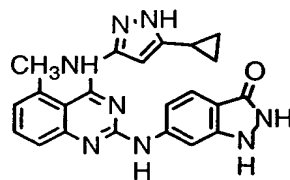
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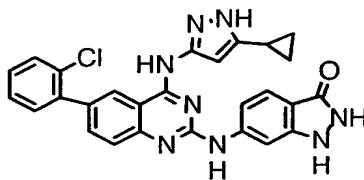
II-(i)-2



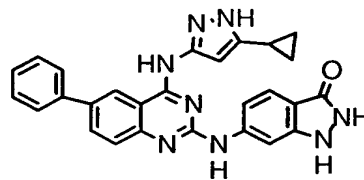
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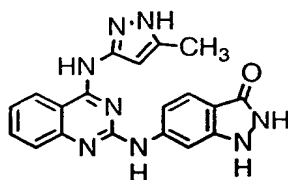
II-(i)-4



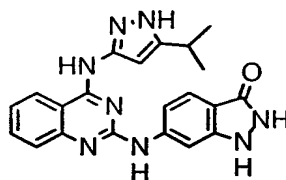
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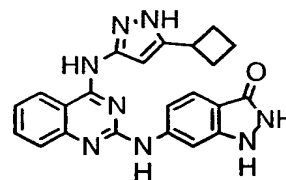
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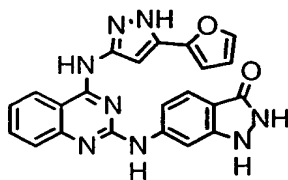
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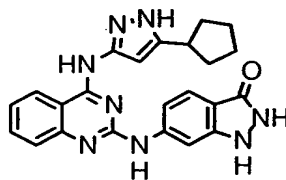
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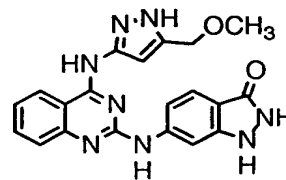
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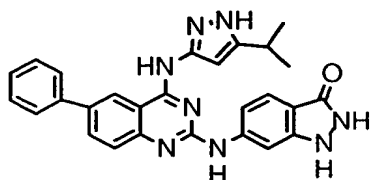
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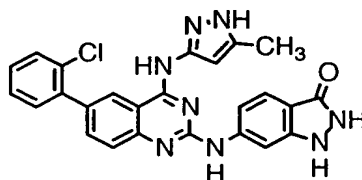
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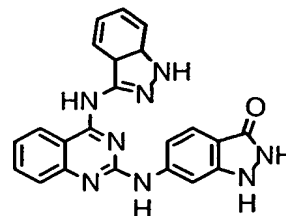
II-(i)-12



II-(i)-13

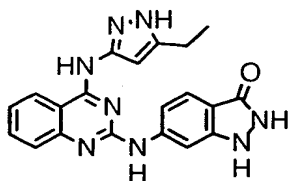


II-(i)-14

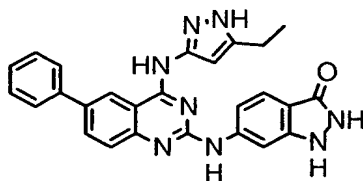


II-(i)-15

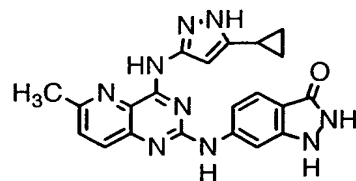
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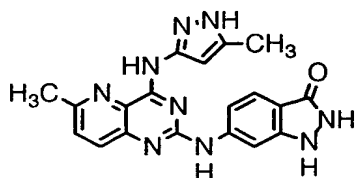
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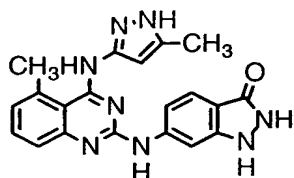
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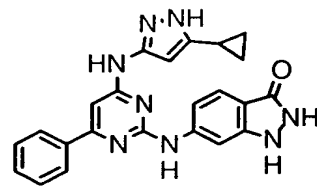
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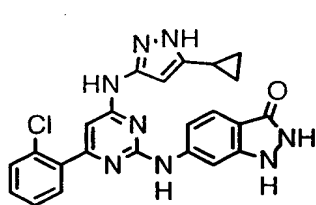
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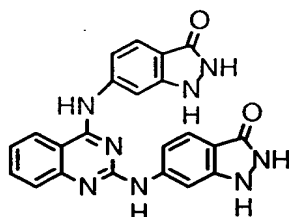
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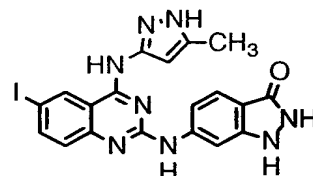
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II-(i)-23



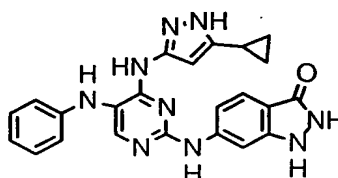
II-(i)-24



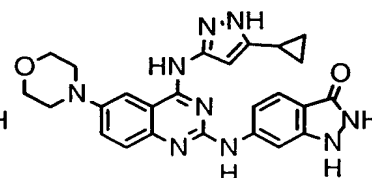
II-(i)-25



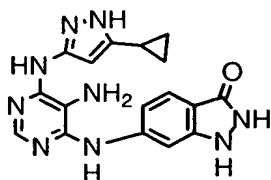
II-(i)-26



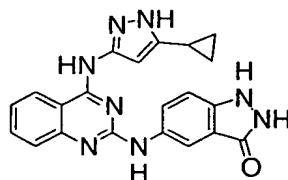
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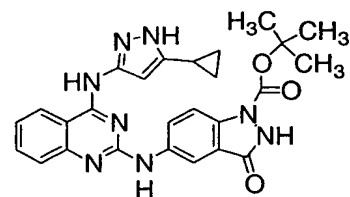
II-(i)-28



II-(i)-29

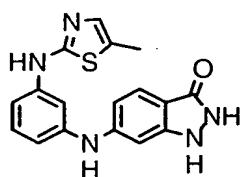


II-(i)-30

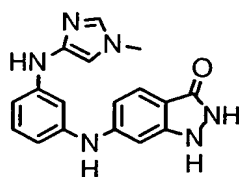


II-(i)-31

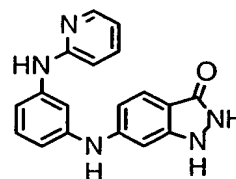
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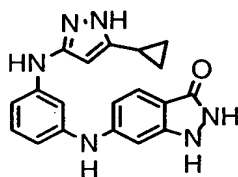
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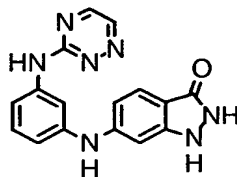
II-(i)-33



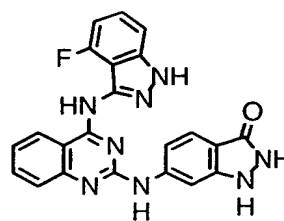
II-(i)-34



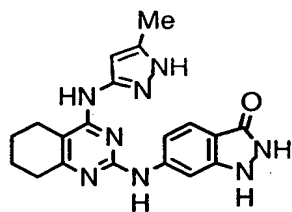
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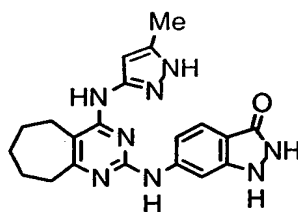
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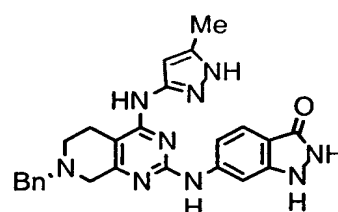
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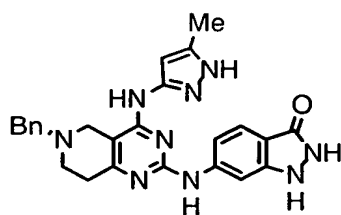
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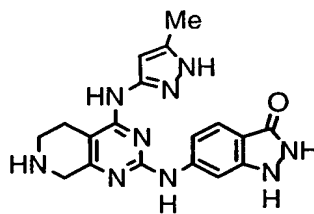
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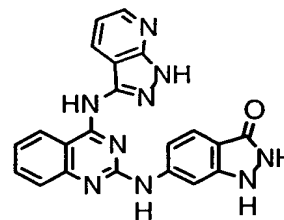
II-(i)-40



II-(i)-41

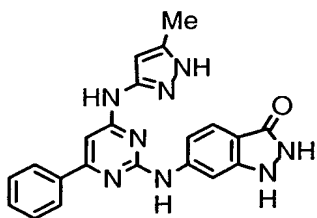


II-(i)-42

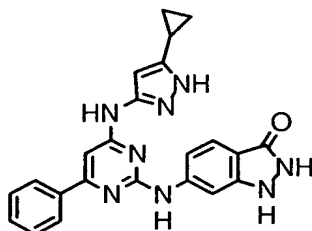


II-(i)-43

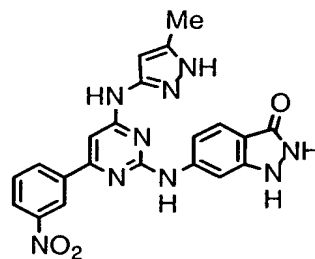
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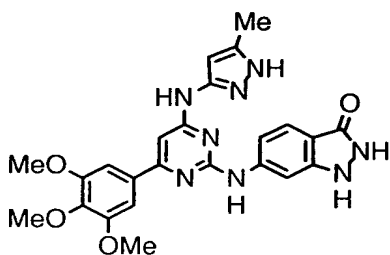
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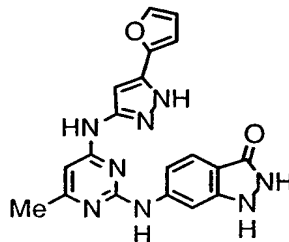
II-(i)-45



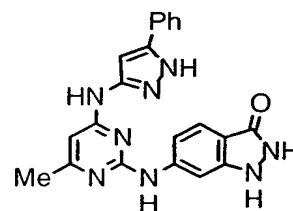
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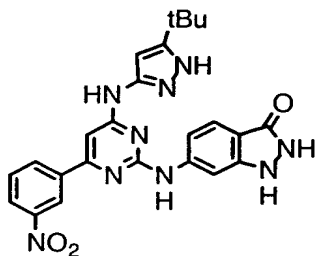
II-(i)-47



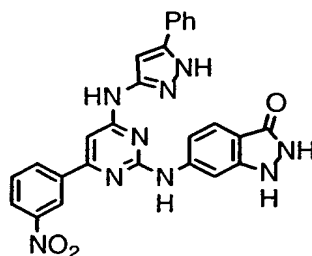
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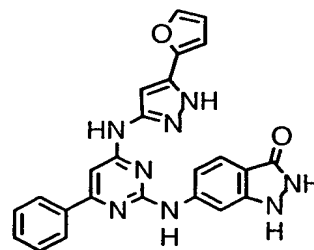
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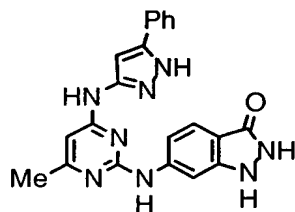
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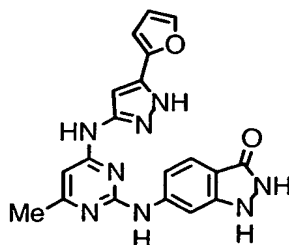
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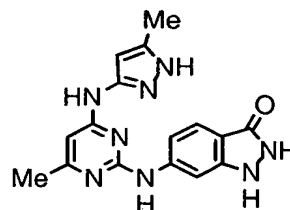
II-(i)-52



II-(i)-53

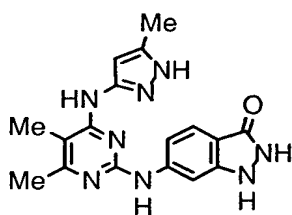


II-(i)-54

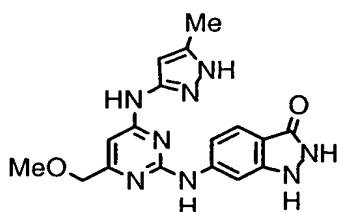


II-(i)-55

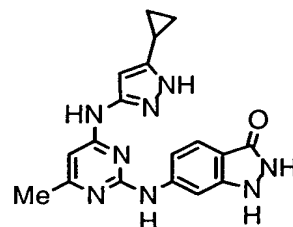
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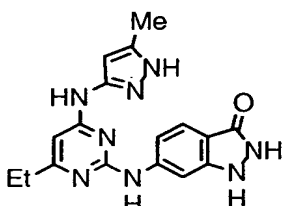
**II-(i)-56**



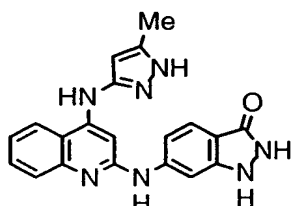
**II-(i)-57**



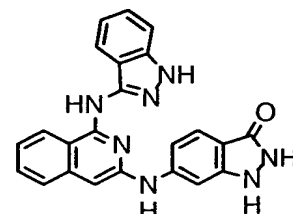
**II-(i)-58**



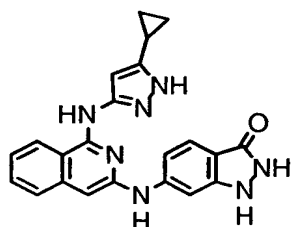
**II-(i)-59**



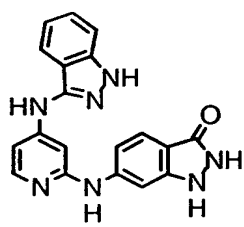
**II-(i)-60**



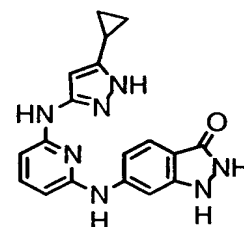
**II-(i)-61**



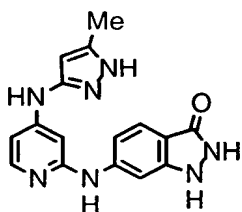
**II-(i)-62**



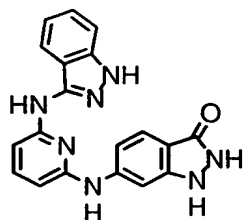
**II-(i)-63**



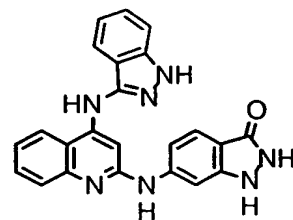
**II-(i)-64**



**II-(i)-65**

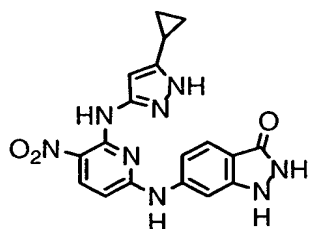


**II-(i)-66**



**II-(i)-67**

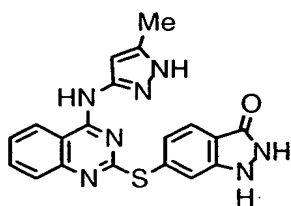
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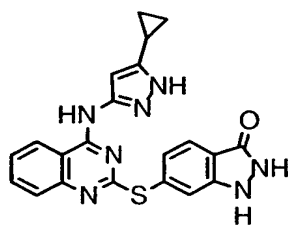
**II-(i)-68**



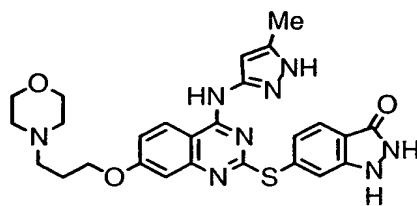
**II-(i)-69**



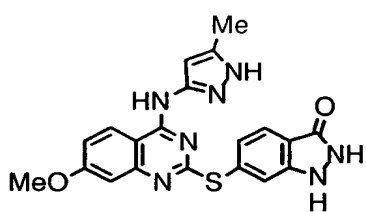
**II-(ii)-1**



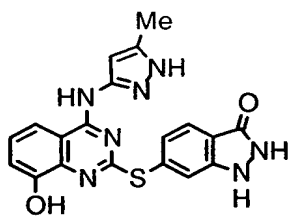
**II-(ii)-2**



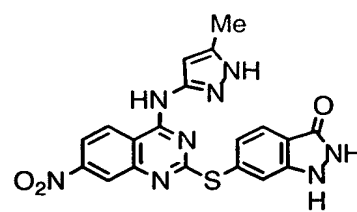
**II-(ii)-3**



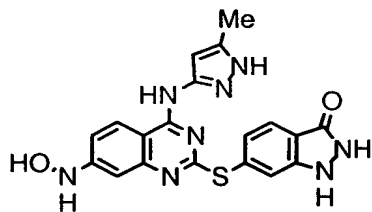
**II-(ii)-4**



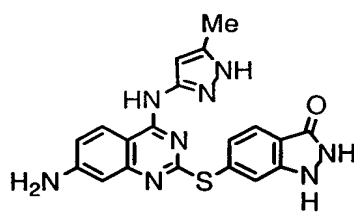
**II-(ii)-5**



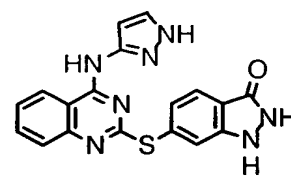
**II-(ii)-6**



**II-(ii)-7**

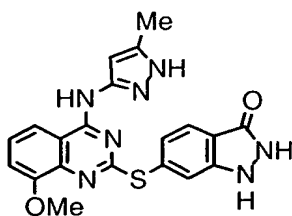


**II-(ii)-8**

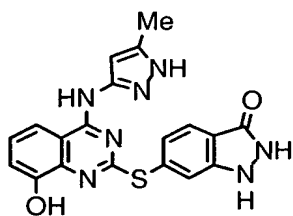


**II-(ii)-9**

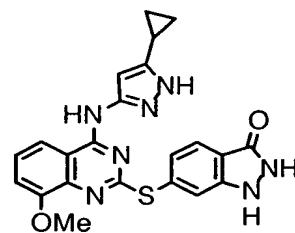
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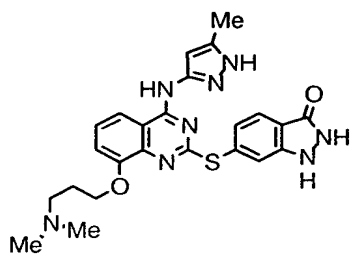
**II-(ii)-10**



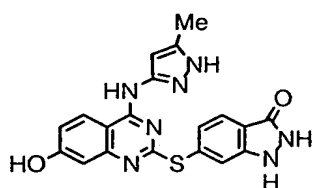
**II-(ii)-11**



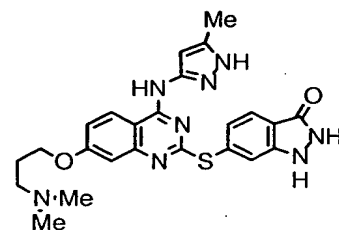
**II-(ii)-12**



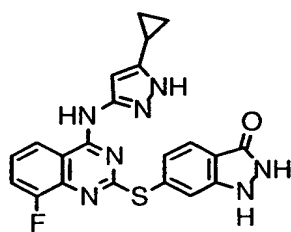
**II-(ii)-13**



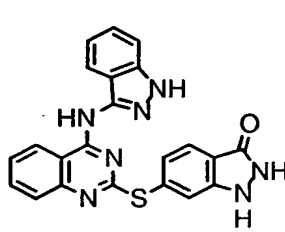
**II-(ii)-14**



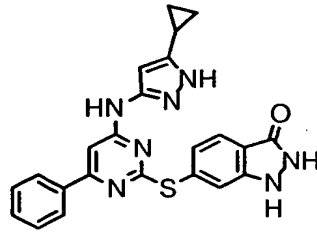
**II-(ii)-15**



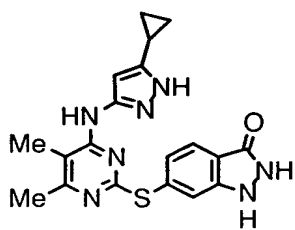
**II-(ii)-16**



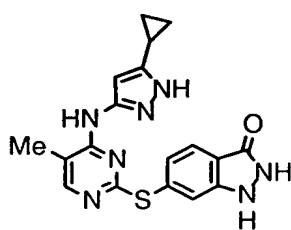
**II-(ii)-17**



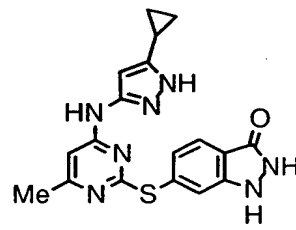
**II-(ii)-18**



**II-(ii)-19**

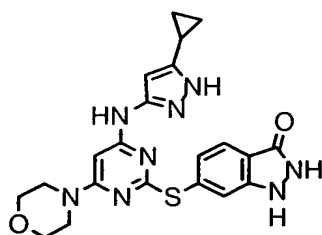


**II-(ii)-20**

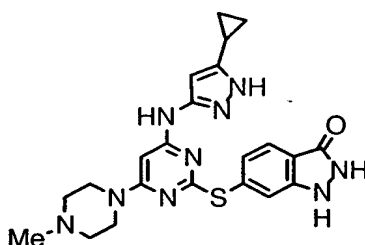


**II-(ii)-21**

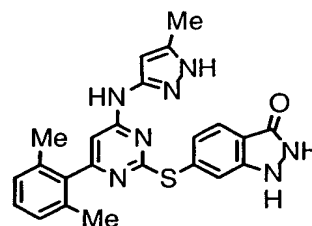
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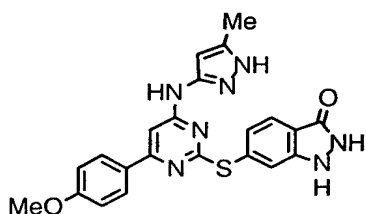
II-(ii)-22



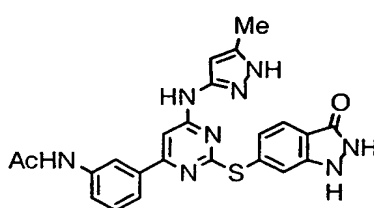
II-(ii)-23



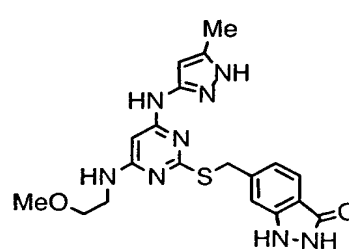
II-(ii)-24



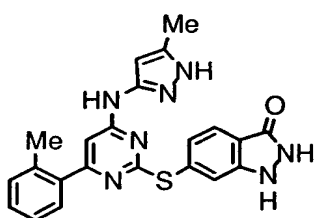
II-(ii)-25



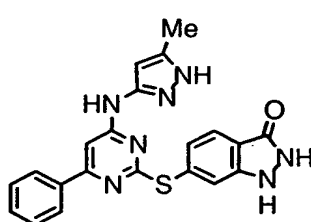
II-(ii)-26



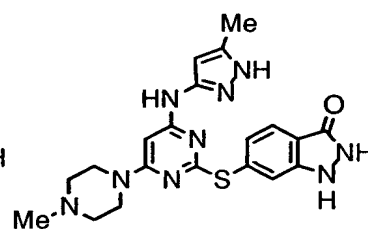
II-(ii)-27



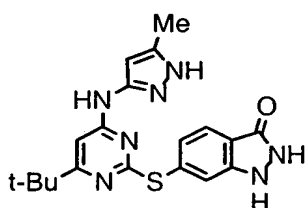
II-(ii)-28



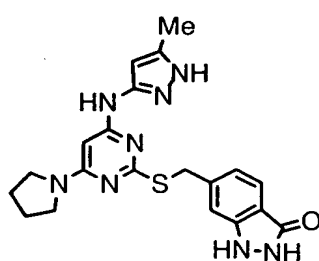
II-(ii)-29



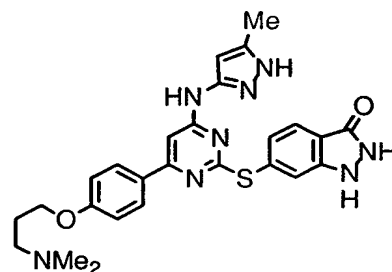
II-(ii)-30



II-(ii)-31



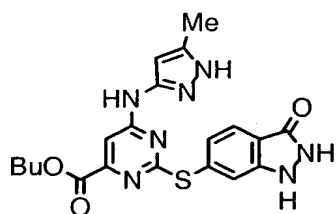
II-(ii)-32



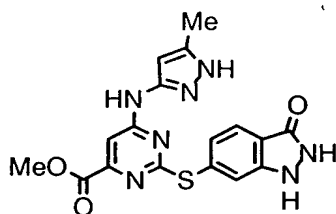
II-(ii)-33



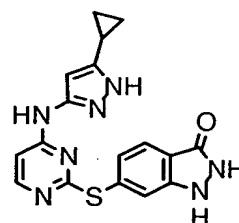
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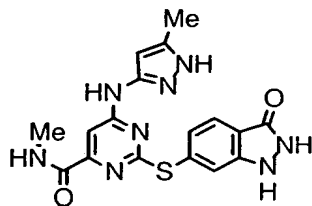
**II-(ii)-34**



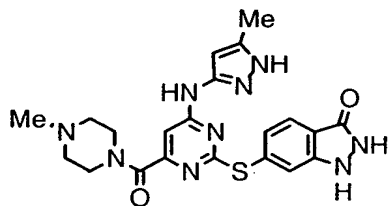
**II-(ii)-35**



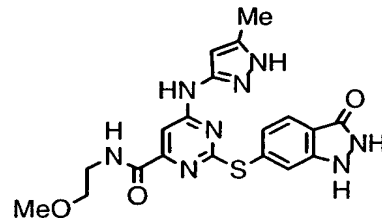
**II-(ii)-36**



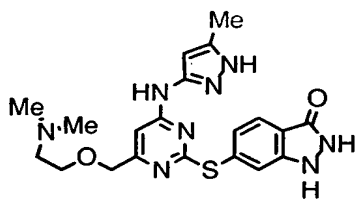
**II-(ii)-37**



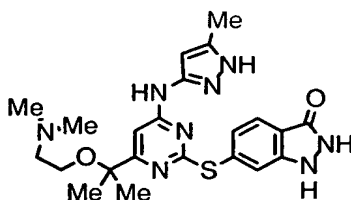
**II-(ii)-38**



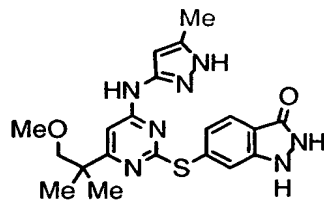
**II-(ii)-39**



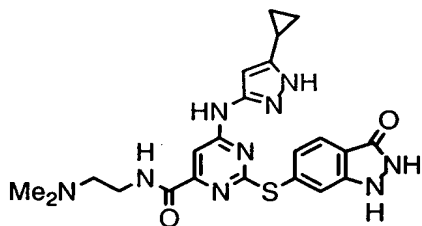
**II-(ii)-40**



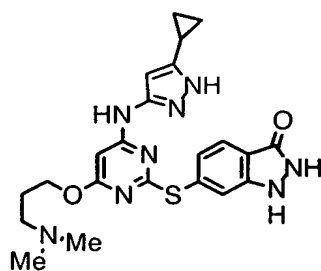
**II-(ii)-41**



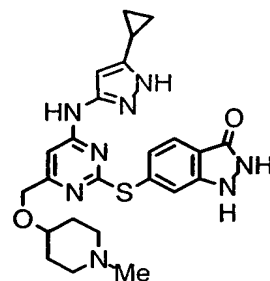
**II-(ii)-42**



**II-(ii)-43**

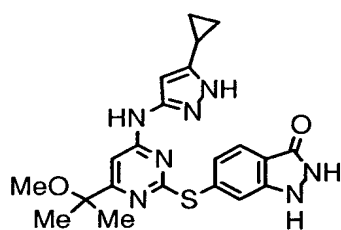


**II-(ii)-44**

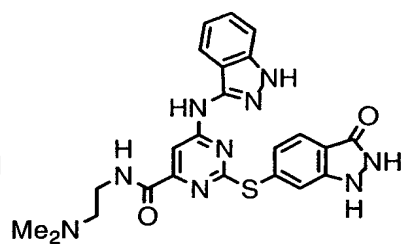


**II-(ii)-45**

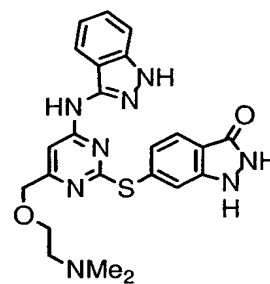
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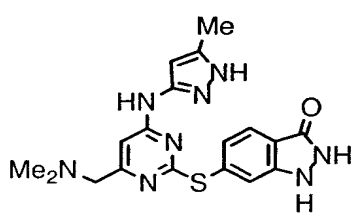
II-(ii)-46



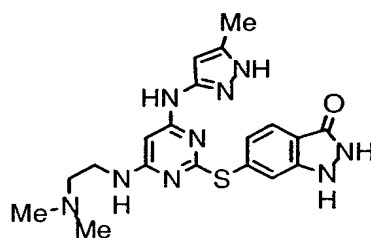
II-(ii)-47



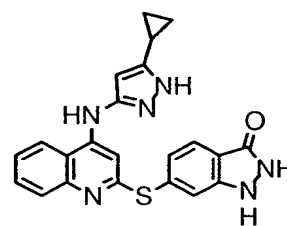
II-(ii)-48



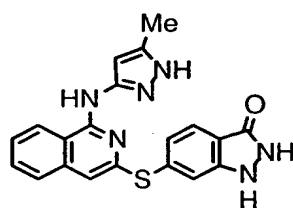
II-(ii)-49



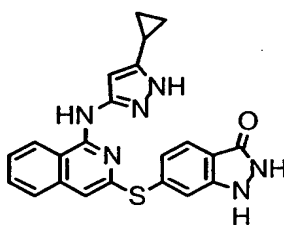
II-(ii)-50



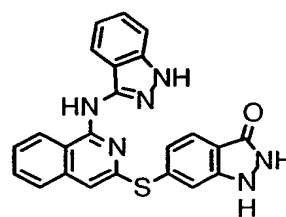
II-(ii)-51



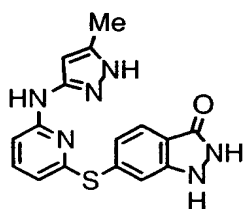
II-(ii)-52



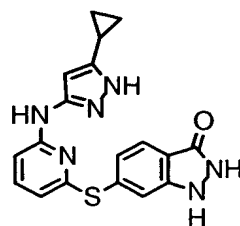
II-(ii)-53



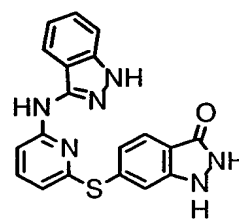
II-(ii)-54



II-(ii)-55

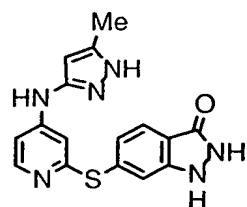


II-(ii)-56

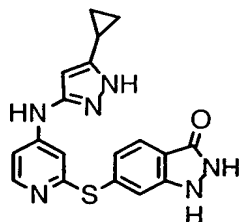


II-(ii)-57

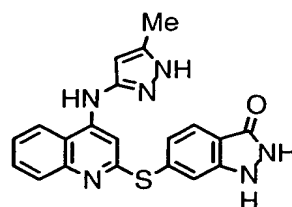
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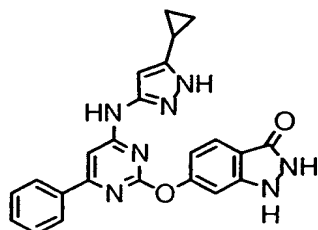
**II-(ii)-58**



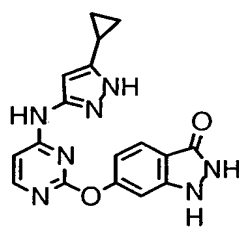
**II-(ii)-59**



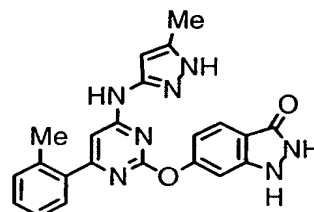
**II-(ii)-60**



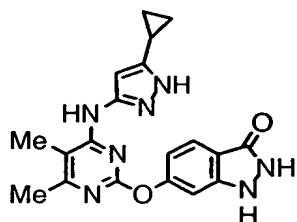
**II-(iii)-1**



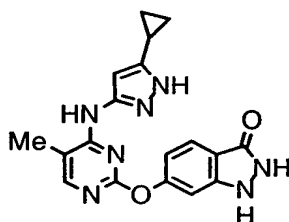
**II-(iii)-2**



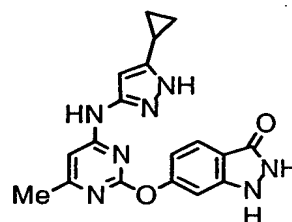
**II-(iii)-3**



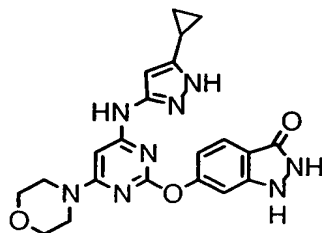
**II-(iii)-4**



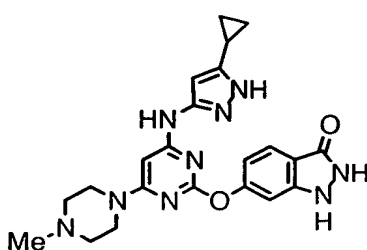
**II-(iii)-5**



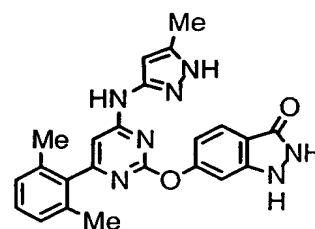
**II-(iii)-6**



**II-(iii)-7**

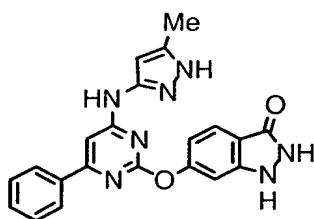


**II-(iii)-8**

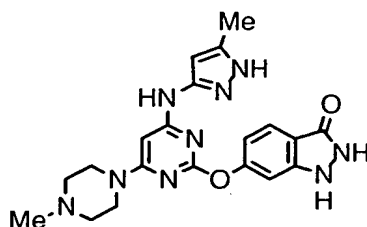


**II-(iii)-9**

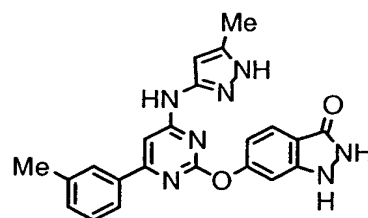
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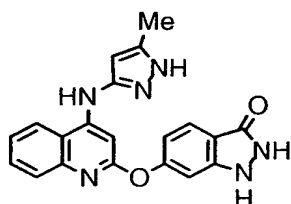
**II-(iii)-10**



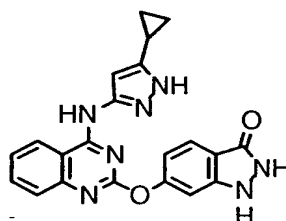
**II-(iii)-11**



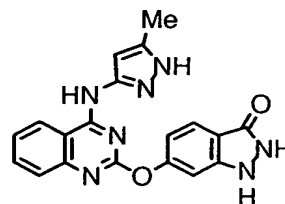
**II-(iii)-12**



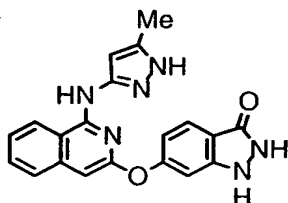
**II-(iii)-13**



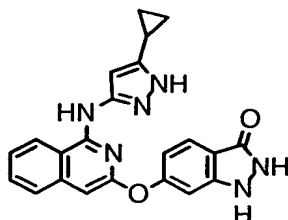
**II-(iii)-14**



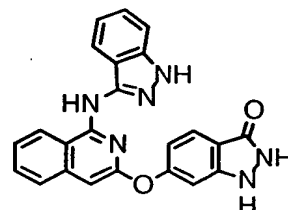
**II-(iii)-15**



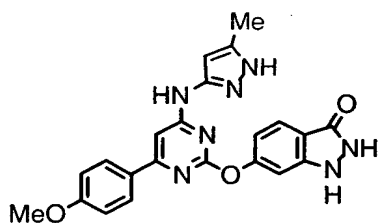
**II-(iii)-16**



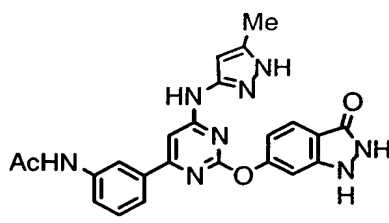
**II-(iii)-17**



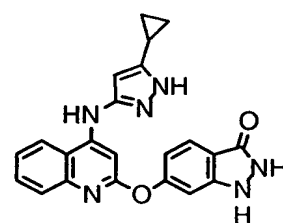
**II-(iii)-18**



**II-(iii)-19**

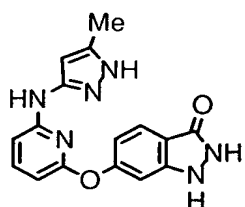


**II-(iii)-20**

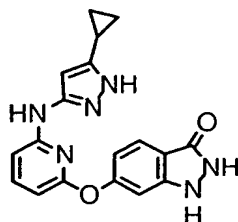


**II-(iii)-20**

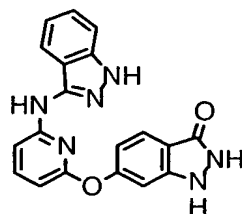
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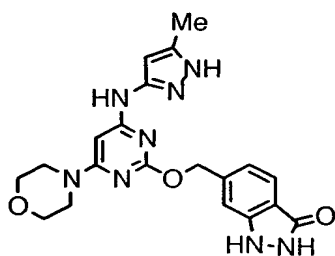
**II-(iii)-21**



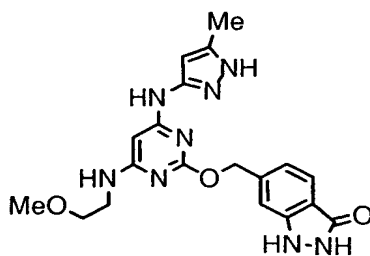
**II-(iii)-22**



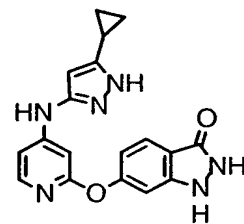
**II-(iii)-23**



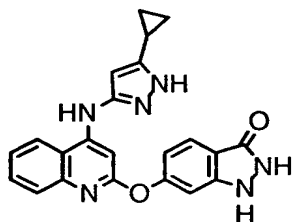
**II-(iii)-24**



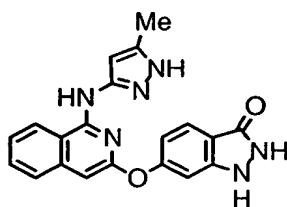
**II-(iii)-25**



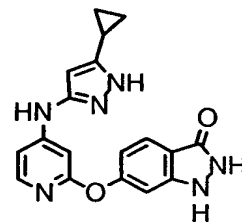
**II-(iii)-26**



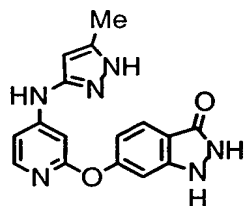
**II-(iii)-27**



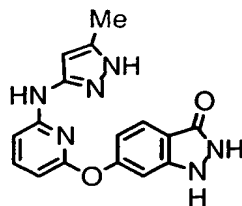
**II-(iii)-28**



**II-(iii)-29**

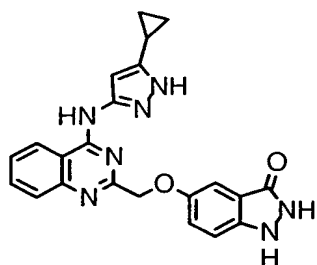


**II-(iii)-30**

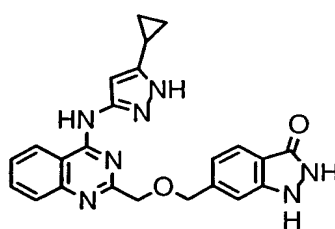


**II-(iii)-31**

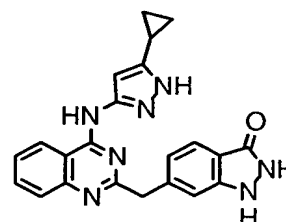
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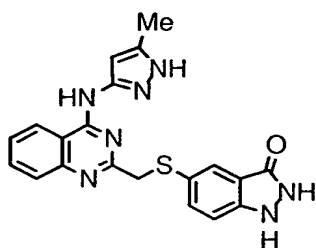
II-(iv)-1



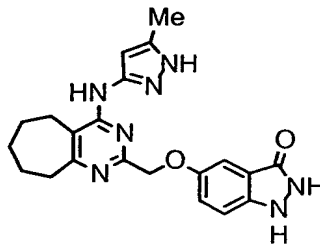
II-(iv)-2



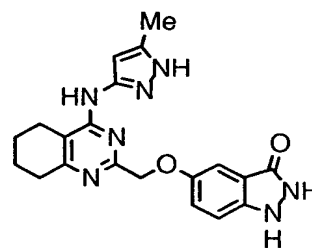
II-(iv)-3



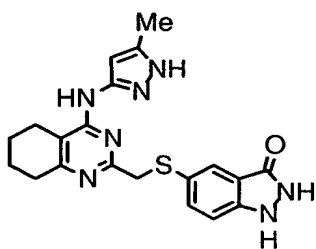
II-(iv)-4



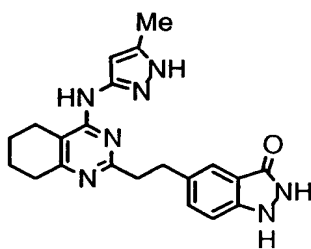
II-(iv)-5



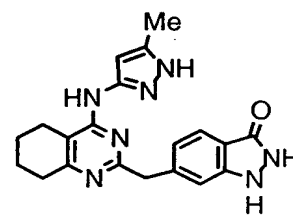
II-(iv)-6



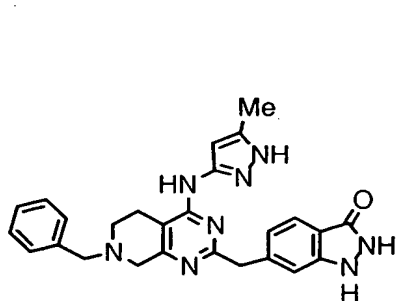
II-(iv)-7



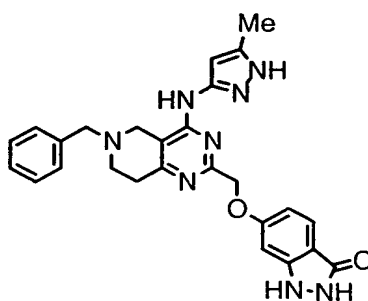
II-(iv)-8



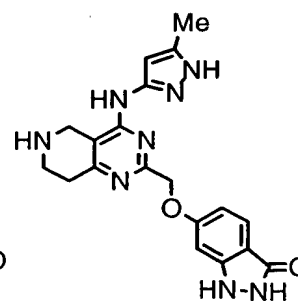
II-(iv)-9



II-(iv)-10

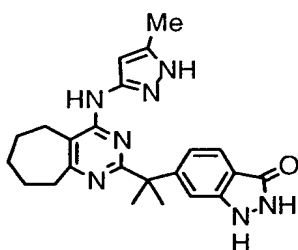


II-(iv)-11

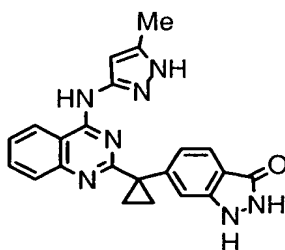


II-(iv)-12

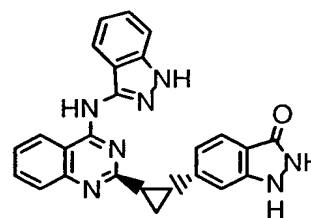
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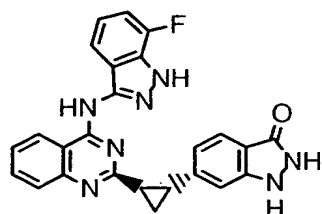
II-(iv)-13



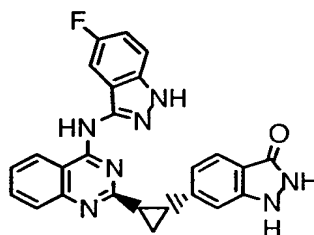
II-(iv)-14



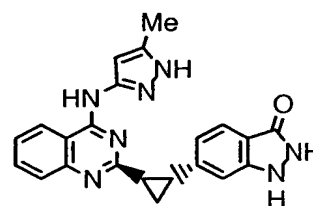
II-(iv)-15



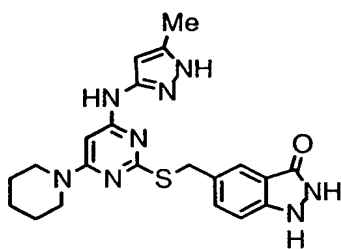
II-(iv)-16



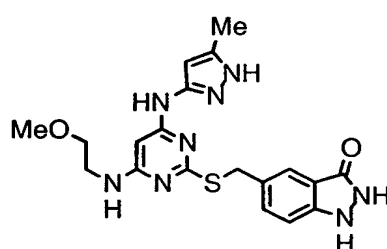
II-(iv)-17



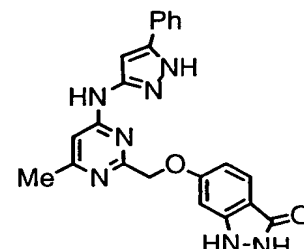
II-(iv)-18



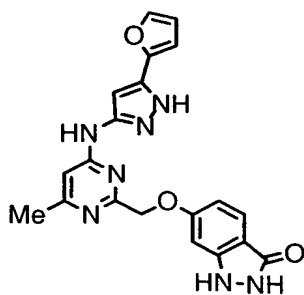
II-(iv)-19



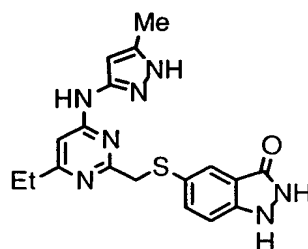
II-(iv)-20



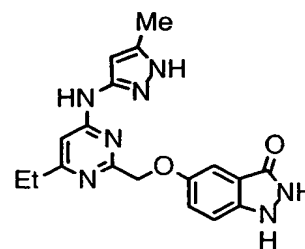
II-(iv)-21



II-(iv)-22

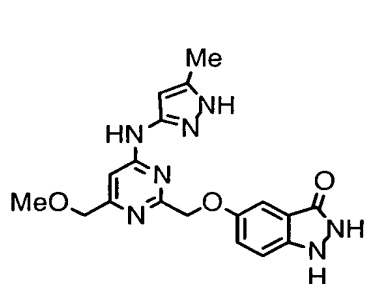


II-(iv)-23

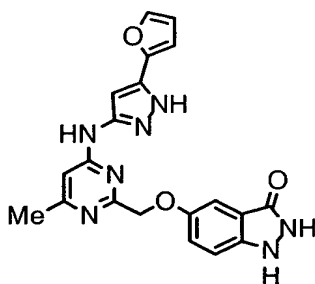


II-(iv)-24

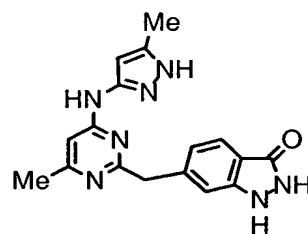
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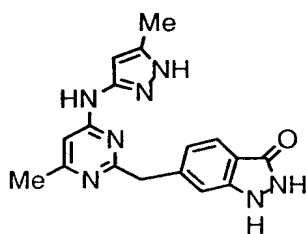
II-(iv)-25



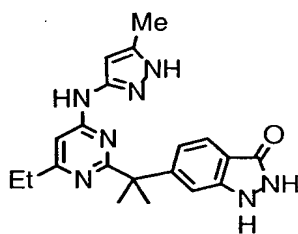
II-(iv)-26



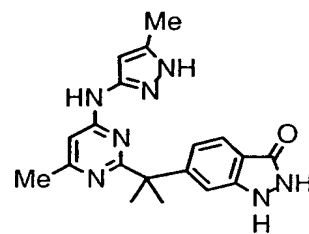
II-(iv)-27



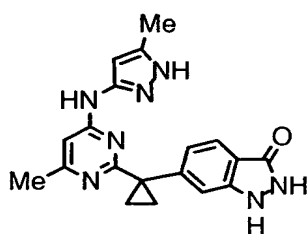
II-(iv)-28



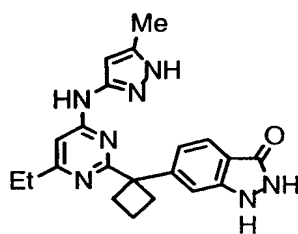
II-(iv)-29



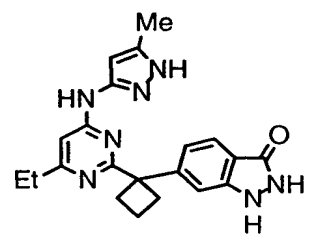
II-(iv)-30



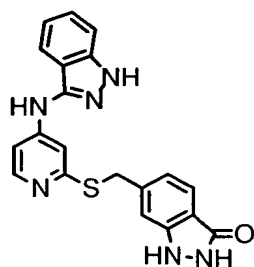
II-(iv)-31



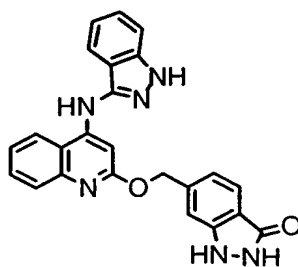
II-(iv)-32



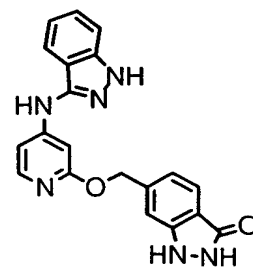
II-(iv)-33



II-(iv)-34



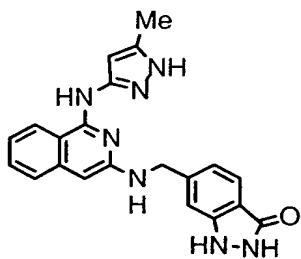
II-(iv)-35



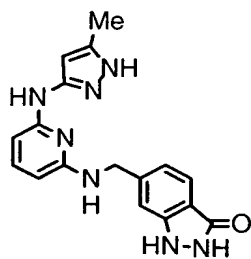
II-(iv)-36



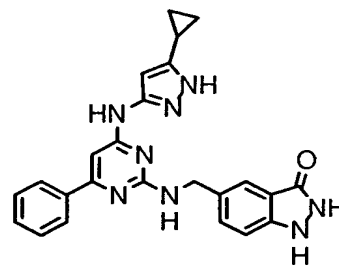
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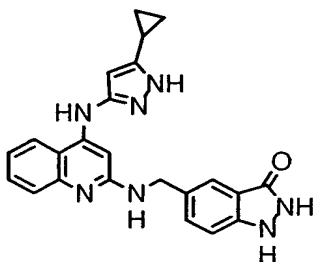
**II-(iv)-37**



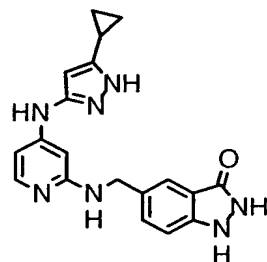
**II-(iv)-38**



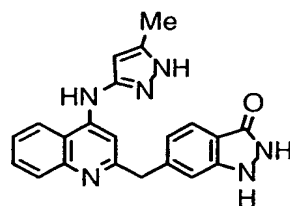
**II-(iv)-39**



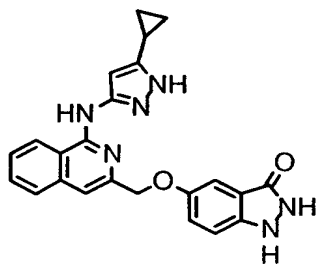
**II-(iv)-40**



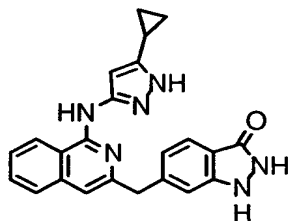
**II-(iv)-41**



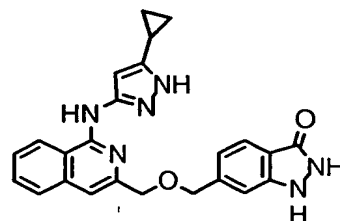
**II-(iv)-42**



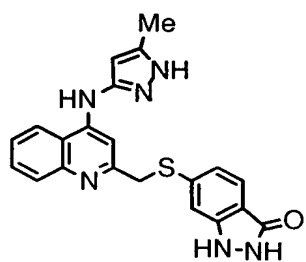
**II-(iv)-43**



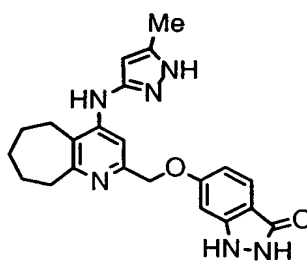
**II-(iv)-44**



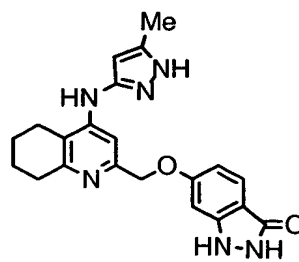
**II-(iv)-45**



**II-(iv)-46**

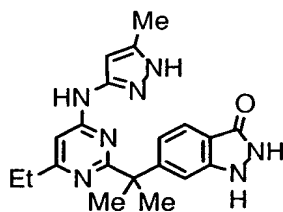


**II-(iv)-47**

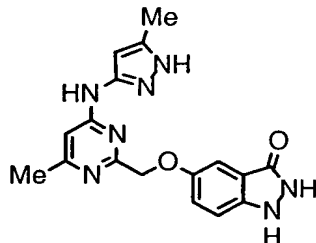


**II-(iv)-48**

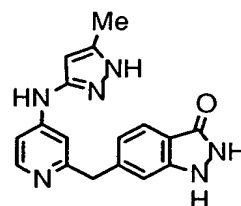
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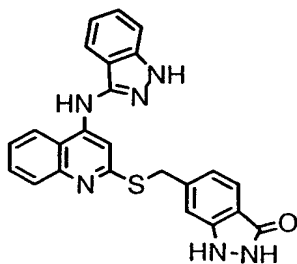
**II-(iv)-49**



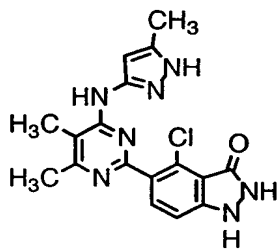
**II-(iv)-50**



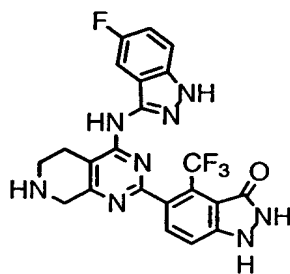
**II-(iv)-51**



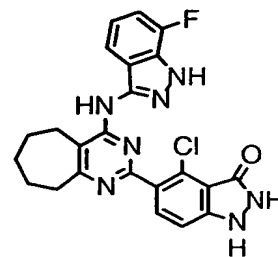
**II-(iv)-52**



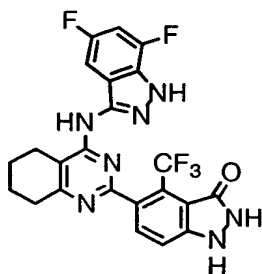
**II-(v)-1**



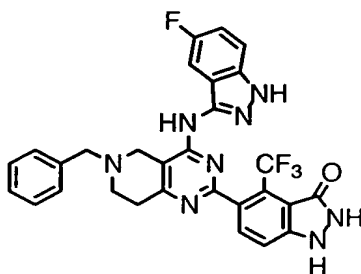
**II-(v)-2**



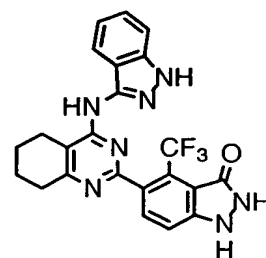
**II-(v)-3**



**II-(v)-4**

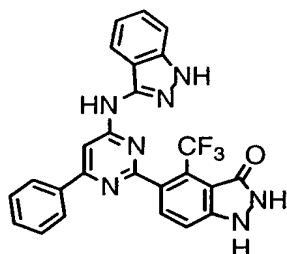


**II-(v)-5**

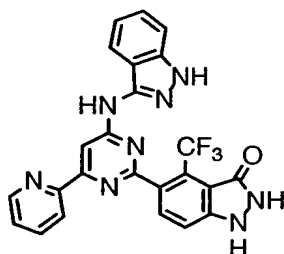


**II-(v)-6**

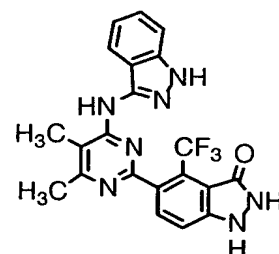
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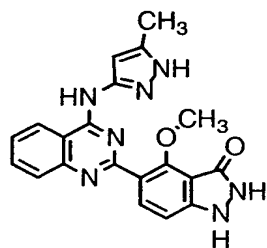
II-(v)-7



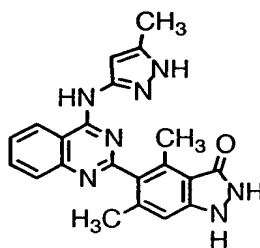
II-(v)-8



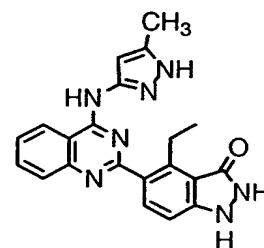
II-(v)-9



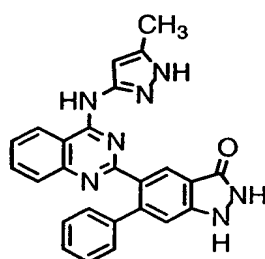
II-(v)-10



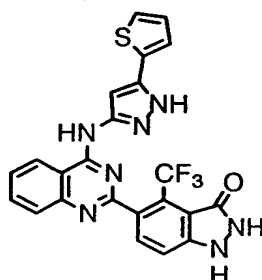
II-(v)-11



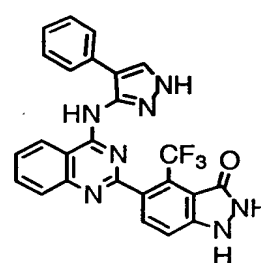
II-(v)-12



II-(v)-13

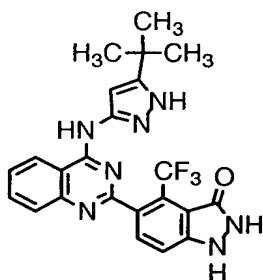


II-(v)-14

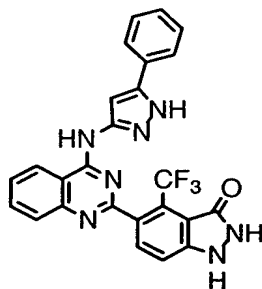


II-(v)-15

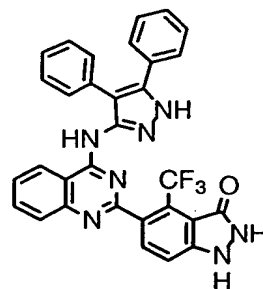
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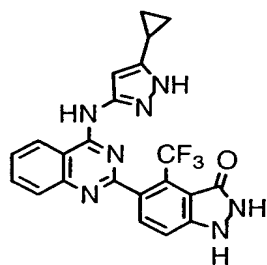
II-(v)-16



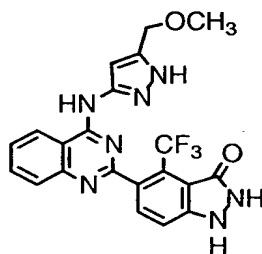
II-(v)-17



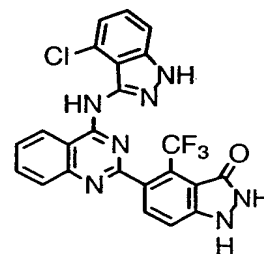
II-(v)-18



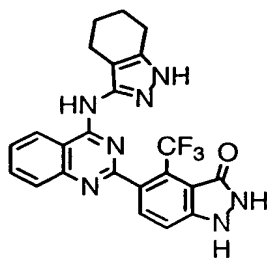
II-(v)-19



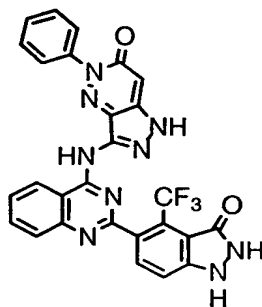
II-(v)-20



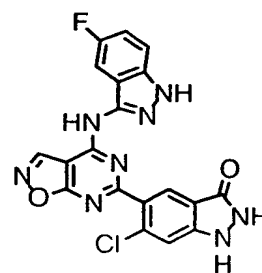
II-(v)-21



II-(v)-22

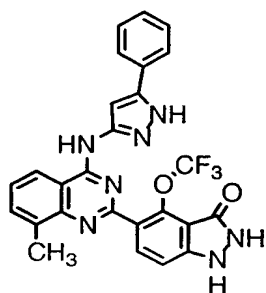


II-(v)-23

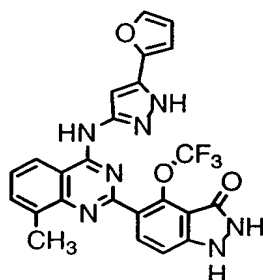


II-(v)-24

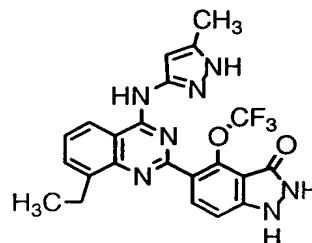
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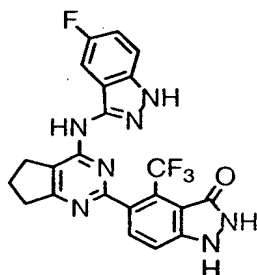
II-(v)-25



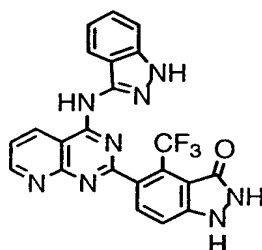
II-(v)-26



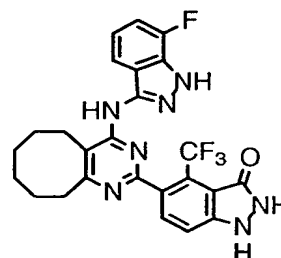
II-(v)-27



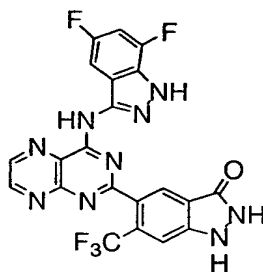
II-(v)-28



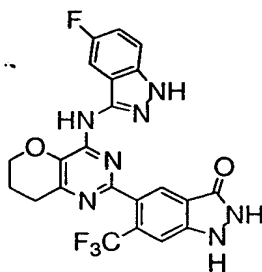
II-(v)-29



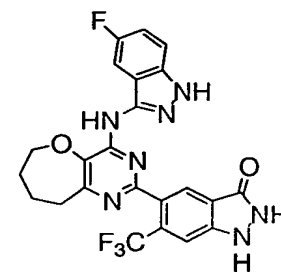
II-(v)-30



II-(v)-31

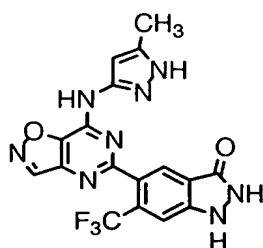


II-(v)-32

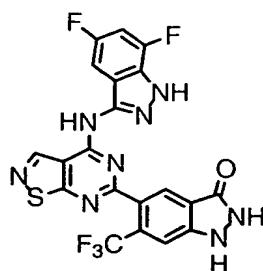


II-(v)-33

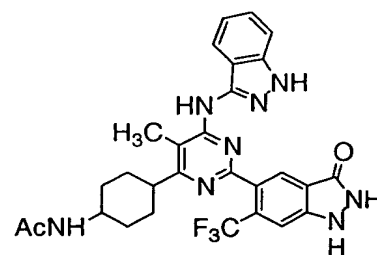
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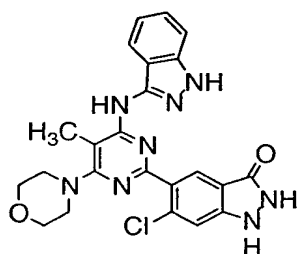
II-(v)-34



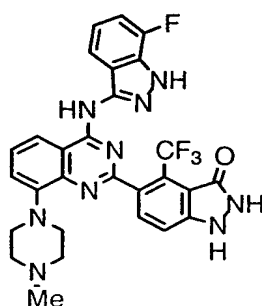
II-(v)-35



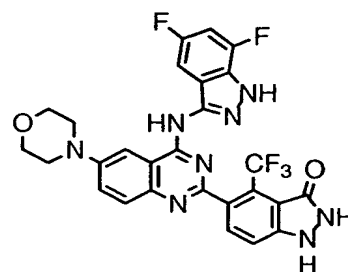
II-(v)-36



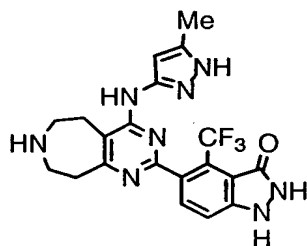
II-(v)-37



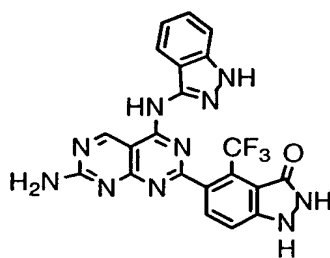
II-(v)-38



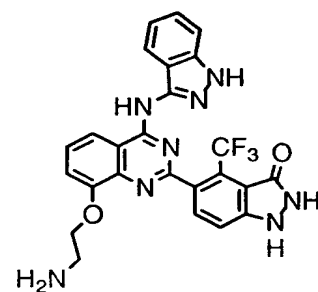
II-(v)-39



II-(v)-40

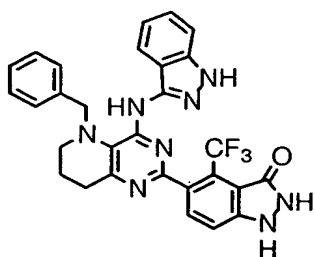


II-(v)-41

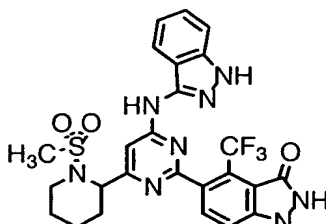


II-(v)-42

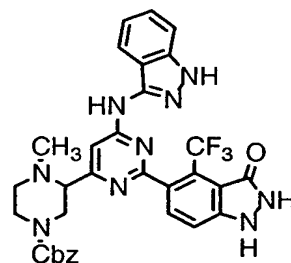
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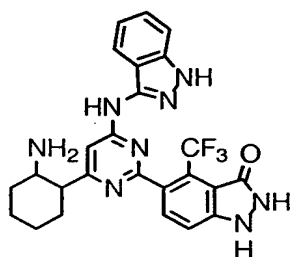
II-(v)-43



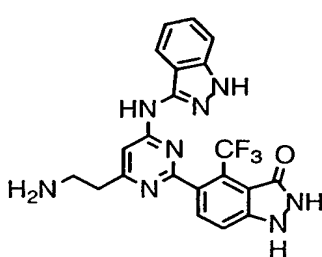
II-(v)-44



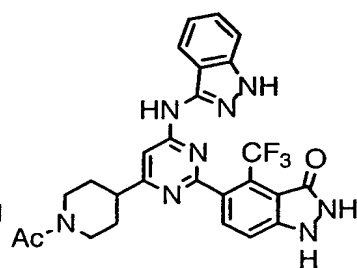
II-(v)-45



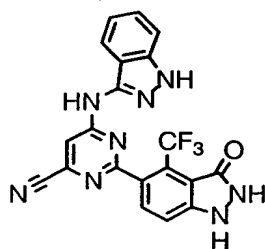
II-(v)-46



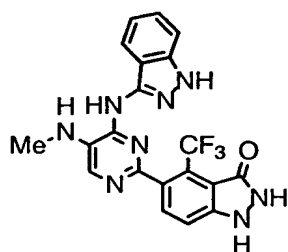
II-(v)-47



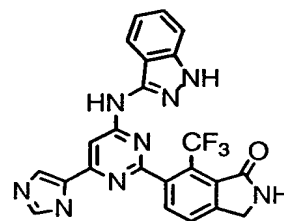
II-(v)-48



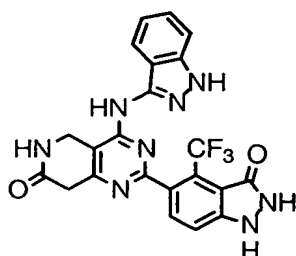
II-(v)-49



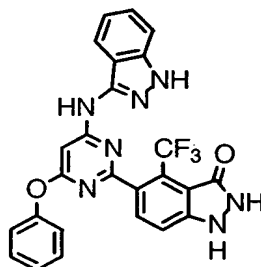
II-(v)-50



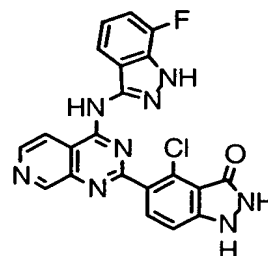
II-(v)-51



II-(v)-52

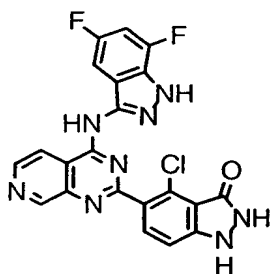


II-(v)-53

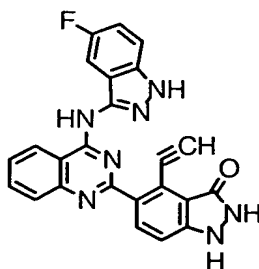


II-(v)-54

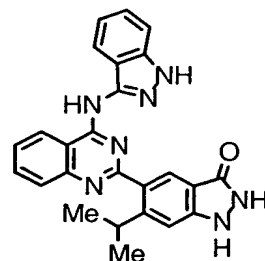
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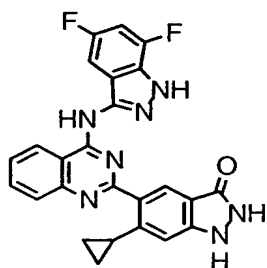
II-(v)-55



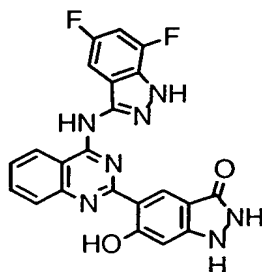
II-(v)-56



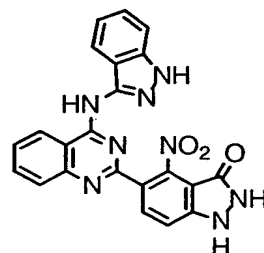
II-(v)-57



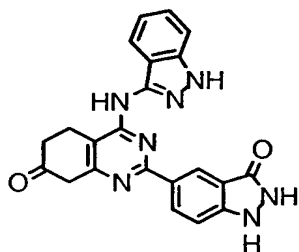
II-(v)-58



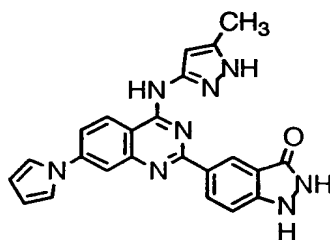
II-(v)-59



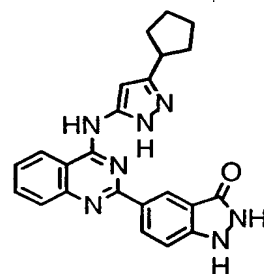
II-(v)-60



II-(v)-61



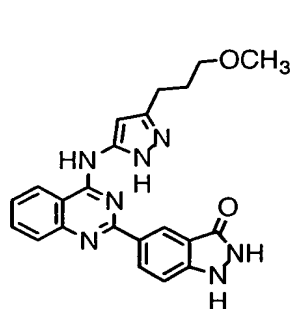
II-(v)-62



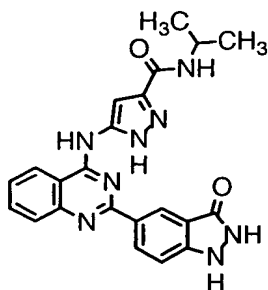
II-(v)-63



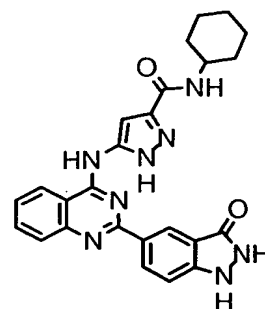
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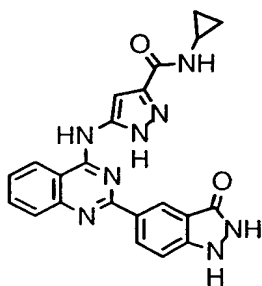
**II-(v)-64**



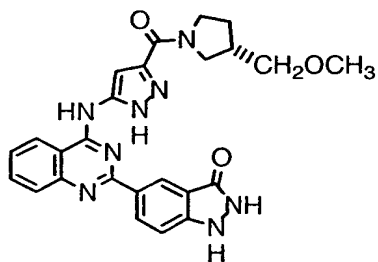
**II-(v)-65**



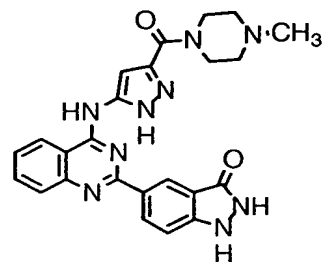
**II-(v)-66**



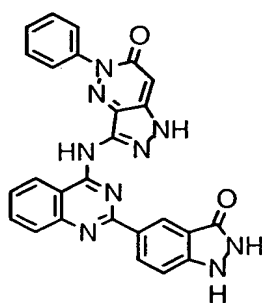
**II-(v)-67**



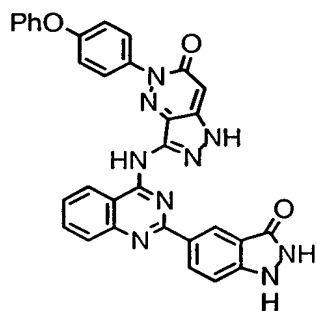
**II-(v)-68**



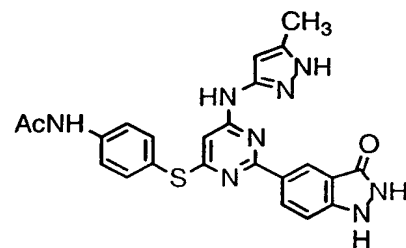
**II-(v)-69**



**II-(v)-70**

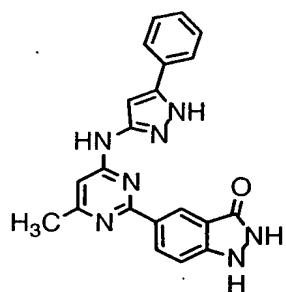


**II-(v)-71**

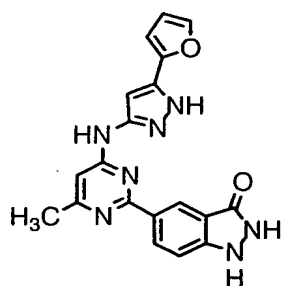


**II-(v)-72**

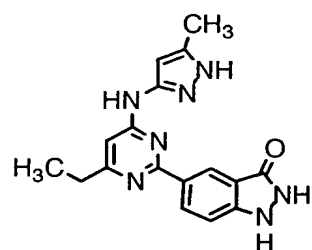
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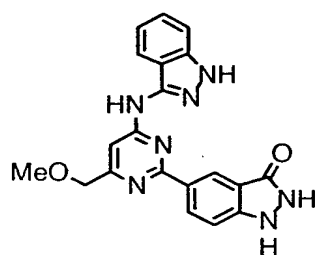
II-(v)-73



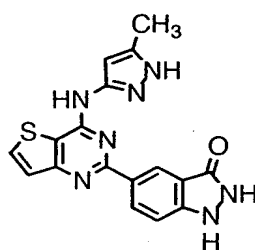
II-(v)-74



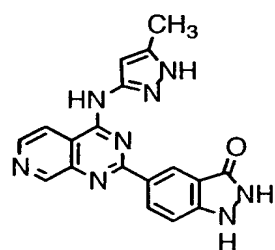
II-(v)-75



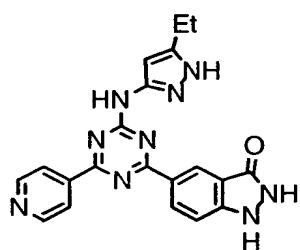
II-(v)-76



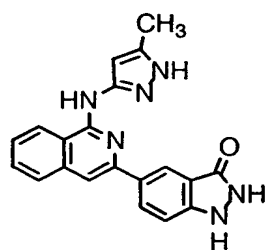
II-(v)-77



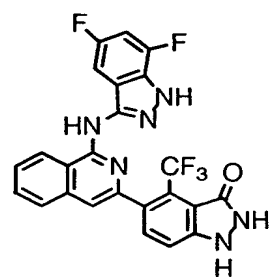
II-(v)-78



II-(v)-79

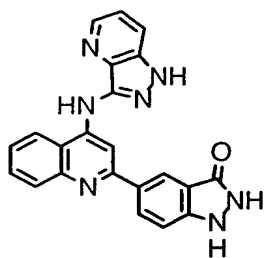


II-(v)-80

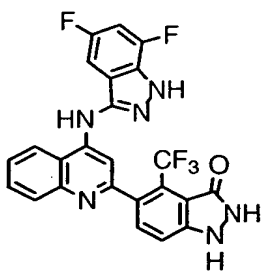


II-(v)-81

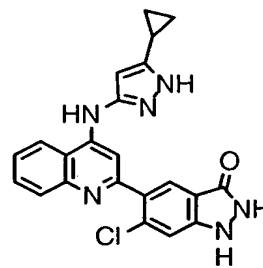
Applicants: Alex Aronov et al.  
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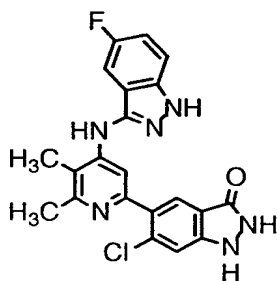
II-(v)-82



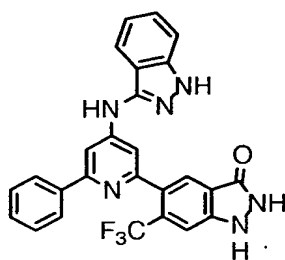
II-(v)-83



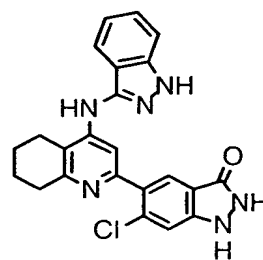
II-(v)-84



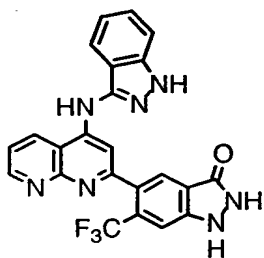
II-(v)-85



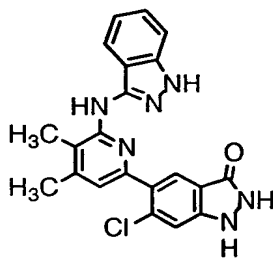
II-(v)-86



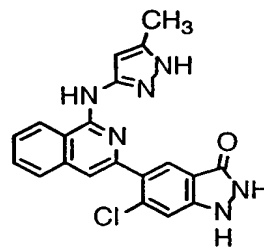
II-(v)-87



II-(v)-88

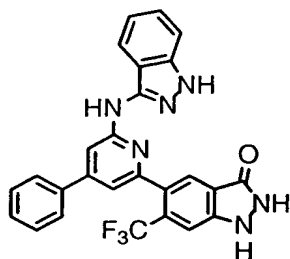


II-(v)-89

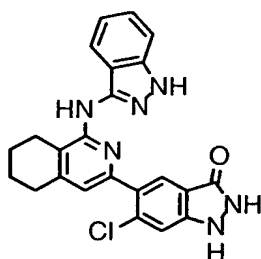


II-(v)-90

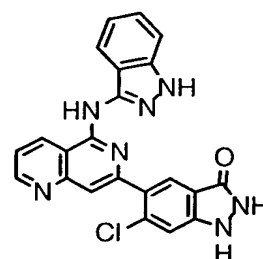
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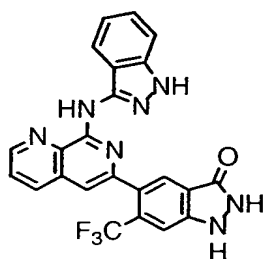
II-(v)-91



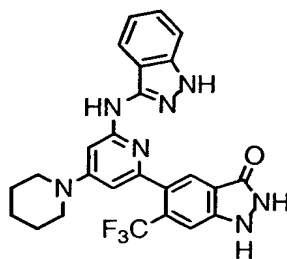
II-(v)-92



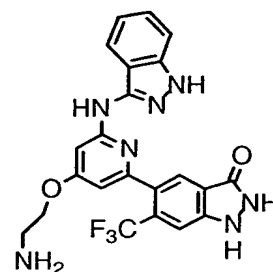
II-(v)-93



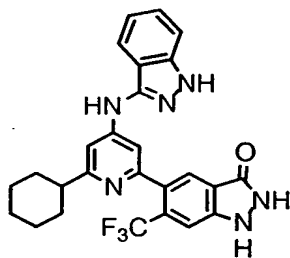
II-(v)-94



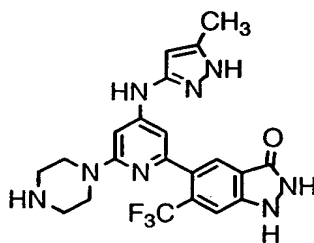
II-(v)-95



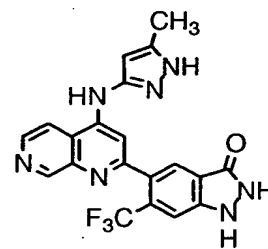
II-(v)-96



II-(v)-97

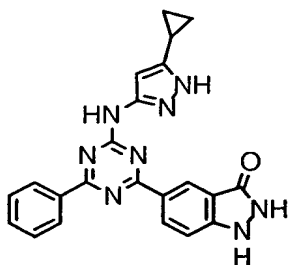


II-(v)-98

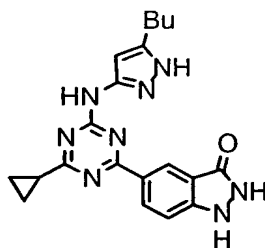


II-(v)-99

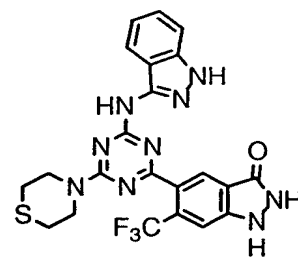
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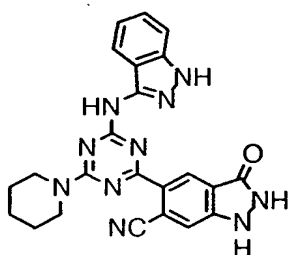
II-(v)-100



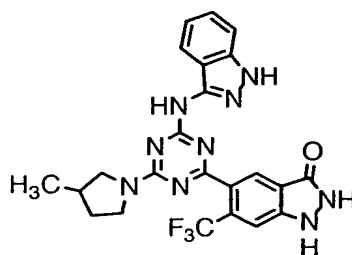
II-(v)-101



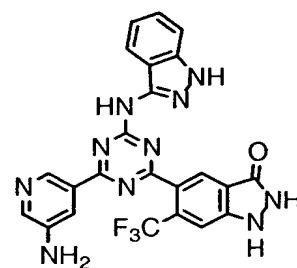
II-(v)-102



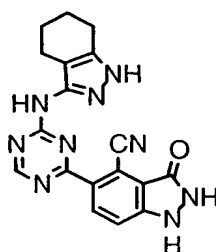
II-(v)-103



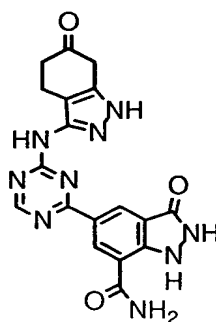
II-(v)-104



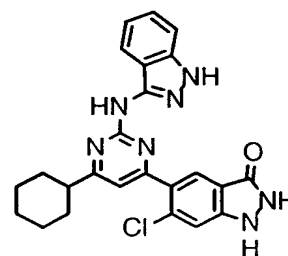
II-(v)-105



II-(v)-106

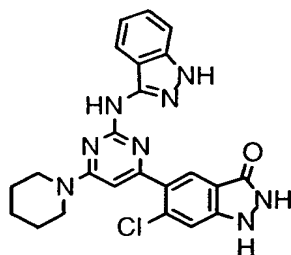


II-(v)-107

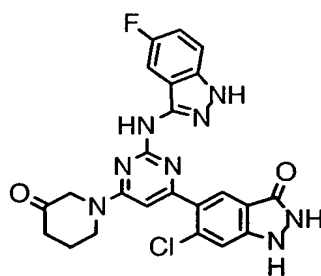


II-(v)-108

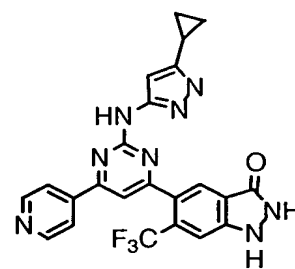
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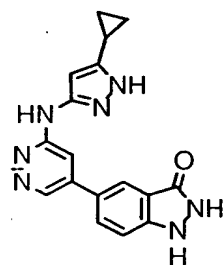
II-(v)-100



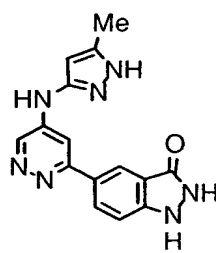
II-(v)-110



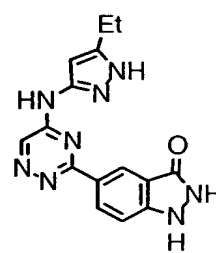
II-(v)-111



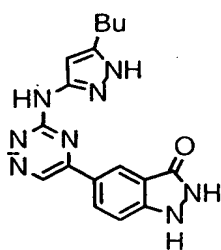
II-(v)-112



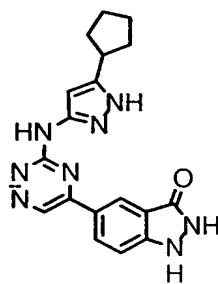
II-(v)-113



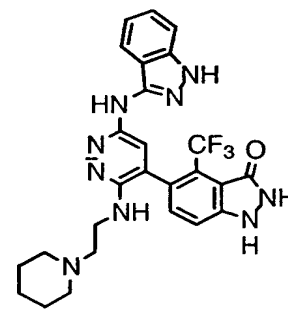
II-(v)-114



II-(v)-115

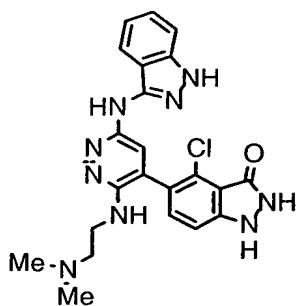


II-(v)-116

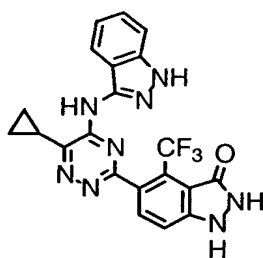


II-(v)-117

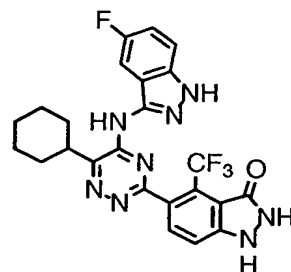
Applicants: Alex Aronov et al.  
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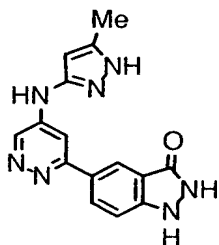
**II-(v)-118**



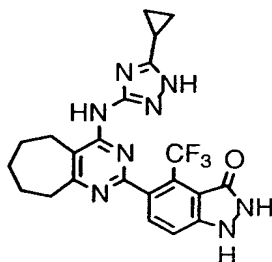
**II-(v)-119**



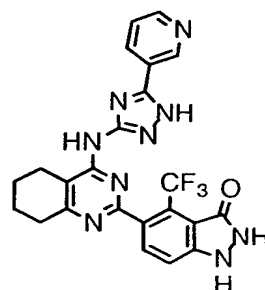
**II-(v)-120**



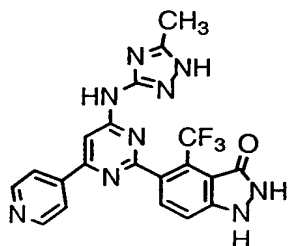
**II-(v)-121**



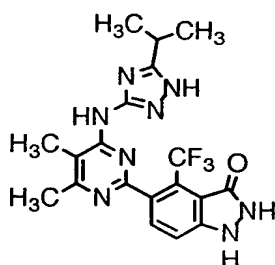
**II-(v)-122**



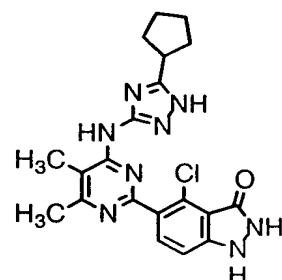
**II-(v)-123**



**II-(v)-124**

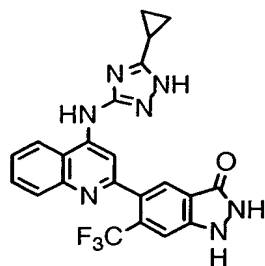


**II-(v)-125**

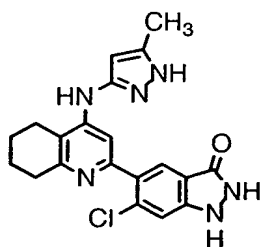


**II-(v)-126**

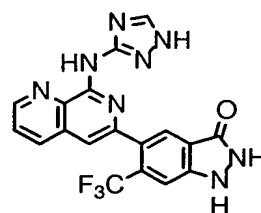
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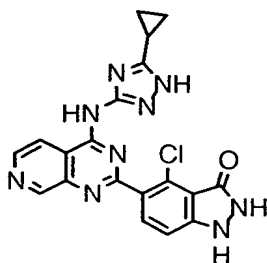
II-(v)-127



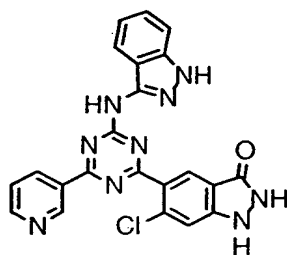
II-(v)-128



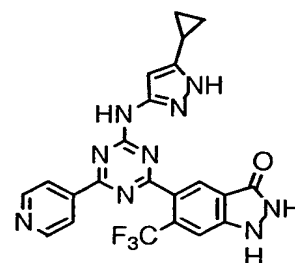
II-(v)-129



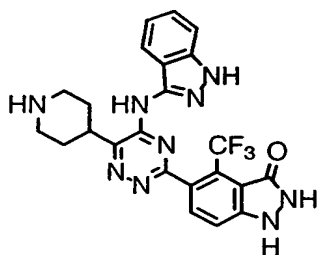
II-(v)-130



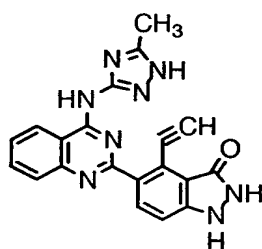
II-(v)-131



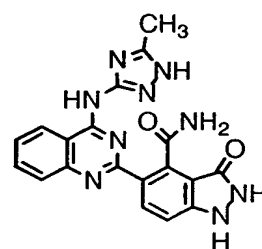
II-(v)-132



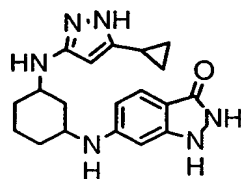
II-(v)-133



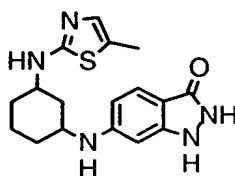
II-(v)-134



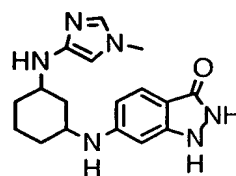
II-(v)-135



III-(i)-1



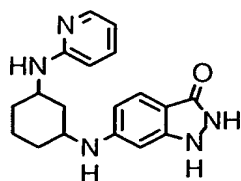
III-(i)-2



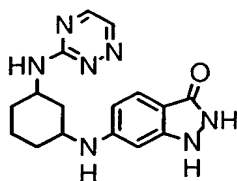
III-(i)-3



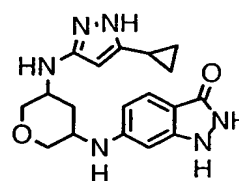
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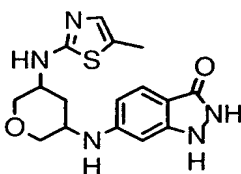
III-(i)-4



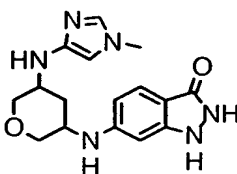
III-(i)-5



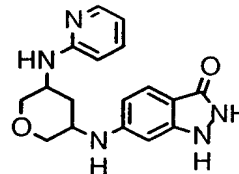
III-(i)-6



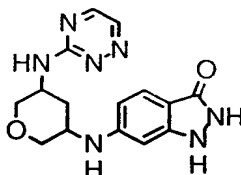
III-(i)-7



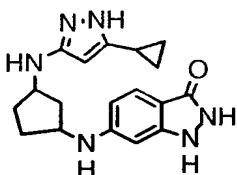
III-(i)-8



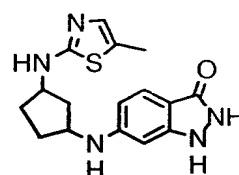
III-(i)-9



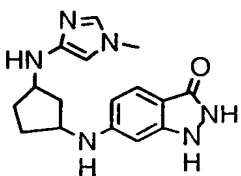
III-(i)-10



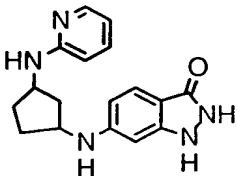
III-(i)-11



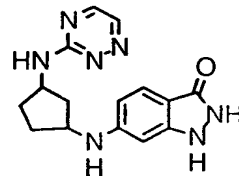
III-(i)-12



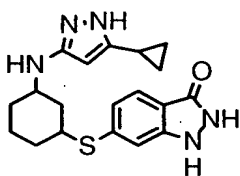
III-(i)-13



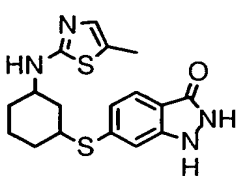
III-(i)-14



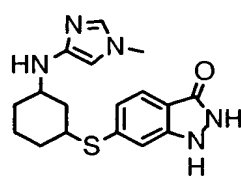
III-(i)-15



III-(ii)-1

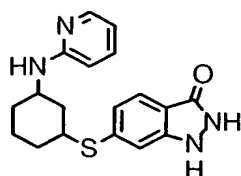


III-(ii)-2

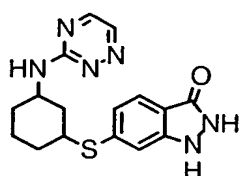


III-(ii)-3

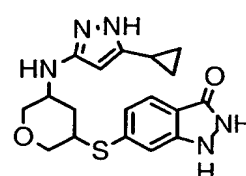
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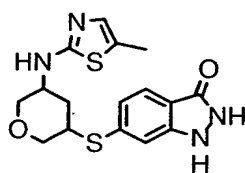
III-(ii)-4



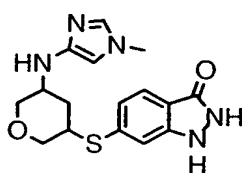
III-(ii)-5



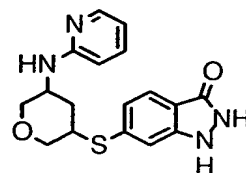
III-(ii)-6



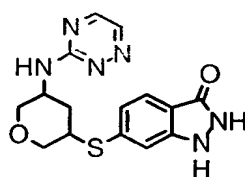
III-(ii)-7



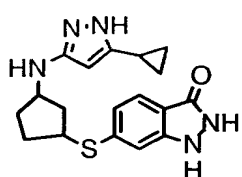
III-(ii)-8



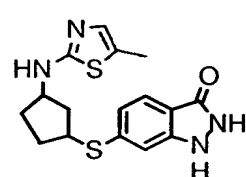
III-(ii)-9



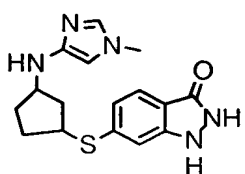
III-(ii)-10



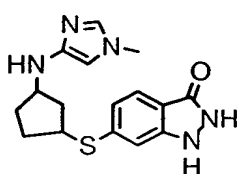
III-(ii)-11



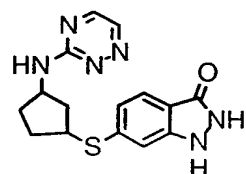
III-(ii)-12



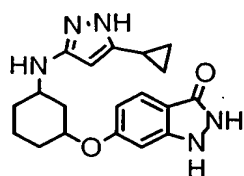
III-(ii)-13



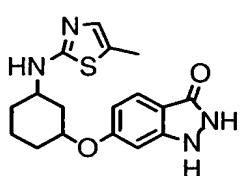
III-(ii)-14



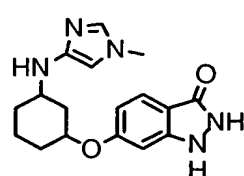
III-(ii)-15



III-(iii)-1

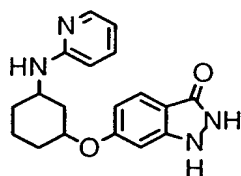


III-(iii)-2

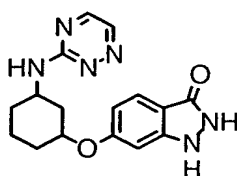


III-(iii)-3

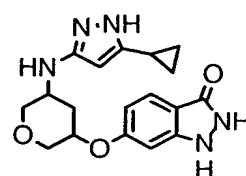
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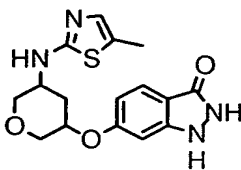
III-(iii)-4



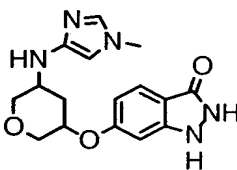
III-(iii)-5



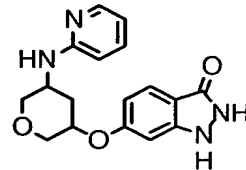
III-(iii)-6



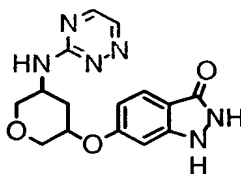
III-(iii)-7



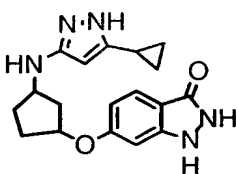
III-(iii)-8



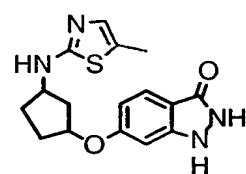
III-(iii)-9



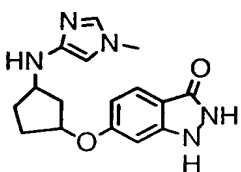
III-(iii)-10



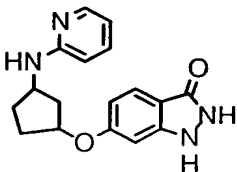
III-(iii)-11



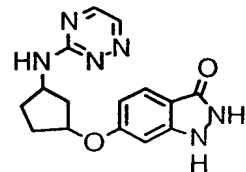
III-(iii)-12



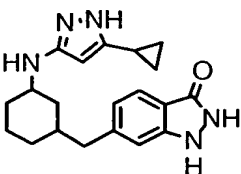
III-(iii)-13



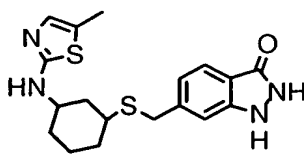
III-(iii)-14



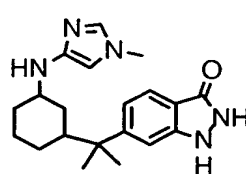
III-(iii)-15



III-(iv)-1

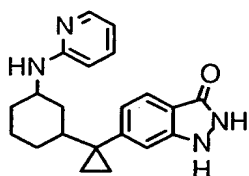


III-(iv)-2

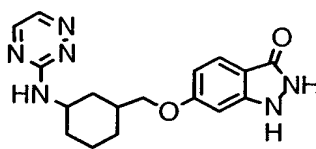


III-(iv)-3

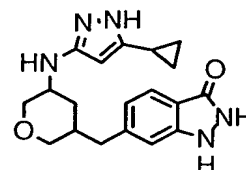
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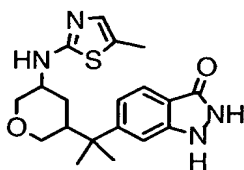
III-(iv)-4



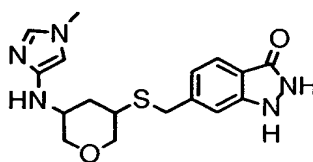
III-(iv)-5



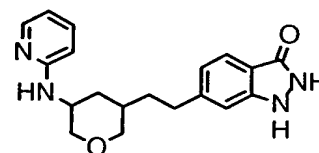
III-(iv)-6



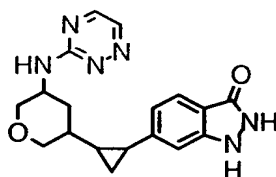
III-(iv)-7



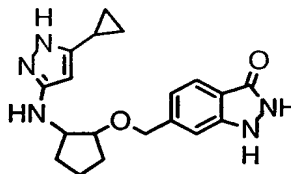
III-(iv)-8



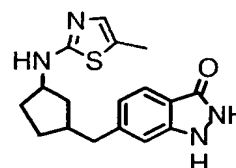
III-(iv)-9



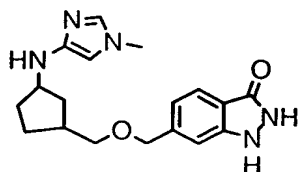
III-(iv)-10



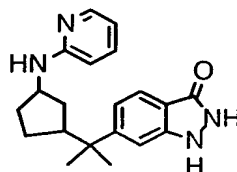
III-(iv)-11



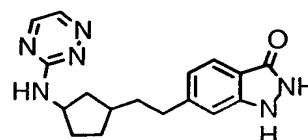
III-(iv)-12



III-(iv)-13

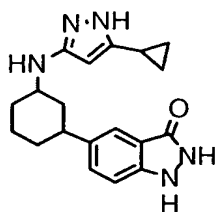


III-(iv)-14

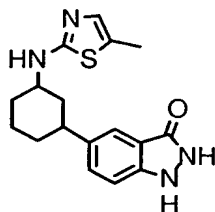


III-(iv)-15

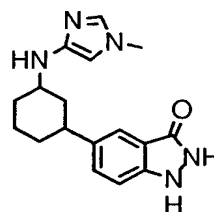
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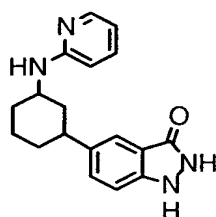
III-(v)-1



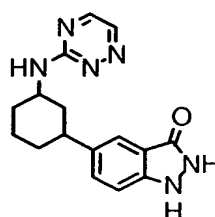
III-(v)-2



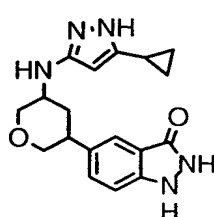
III-(v)-3



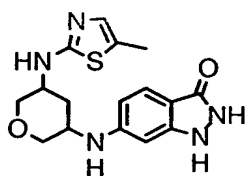
III-(v)-4



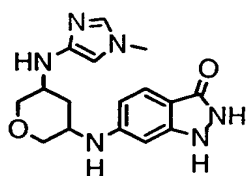
III-(v)-5



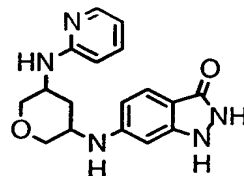
III-(v)-6



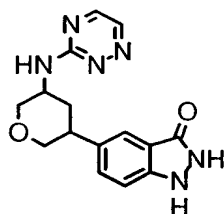
III-(v)-7



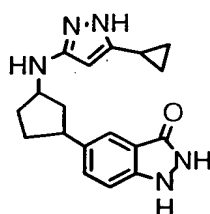
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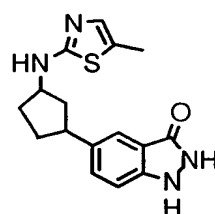
III-(v)-9



III-(v)-10

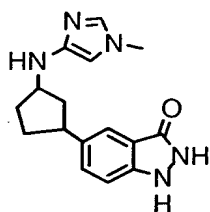


III-(v)-11

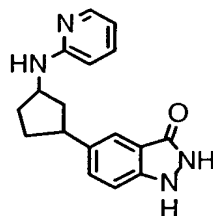


III-(v)-12

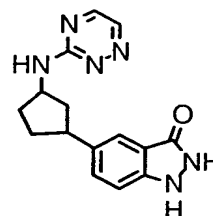
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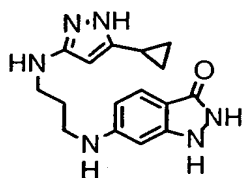
III-(v)-13



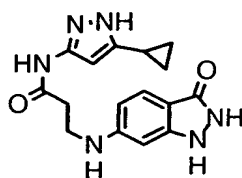
III-(v)-14



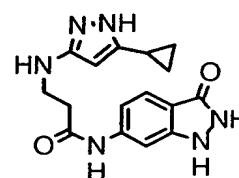
III-(v)-15



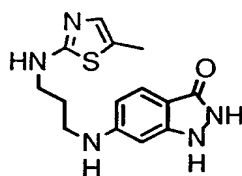
IV-1



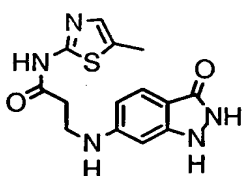
IV-2



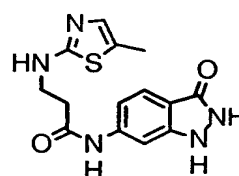
IV-3



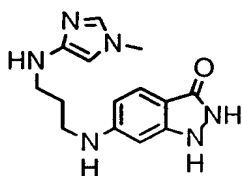
IV-4



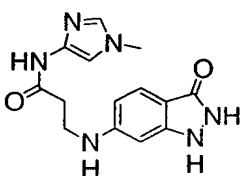
IV-5



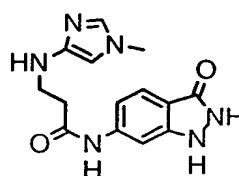
IV-6



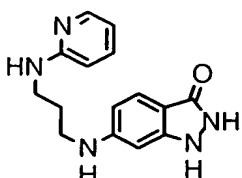
IV-7



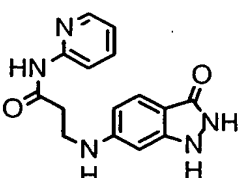
IV-8



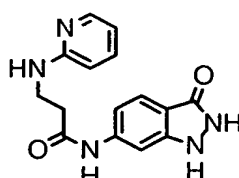
IV-9



IV-10

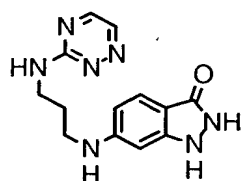


IV-11

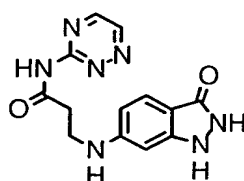


IV-12

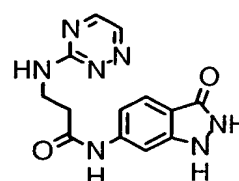
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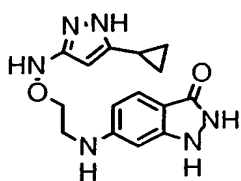
**IV-13**



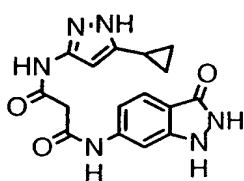
**IV-14**



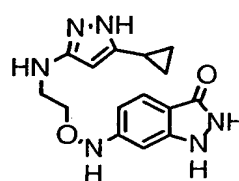
**IV-15**



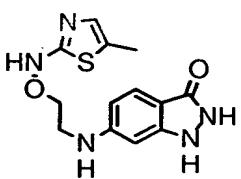
**IV-16**



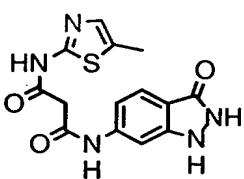
**IV-17**



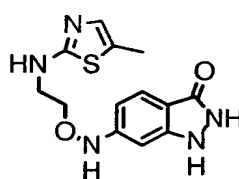
**IV-18**



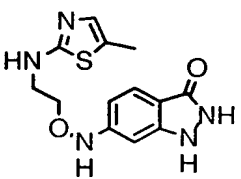
**IV-19**



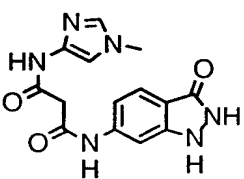
**IV-20**



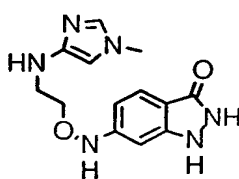
**IV-21**



**IV-22**

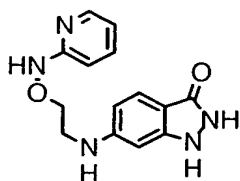


**IV-23**

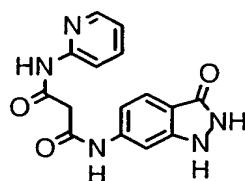


**IV-24**

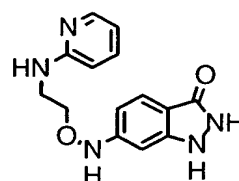
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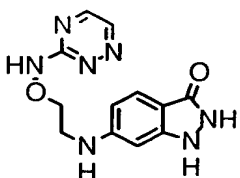
**IV-25**



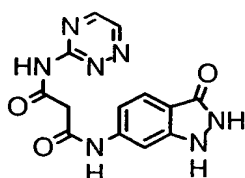
**IV-26**



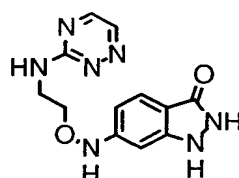
**IV-27**



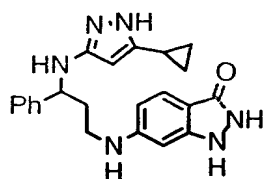
**IV-28**



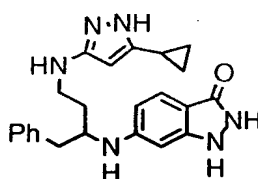
**IV-29**



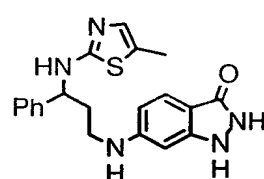
**IV-30**



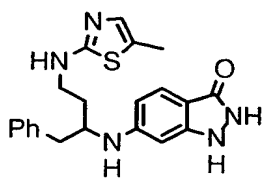
**IV-31**



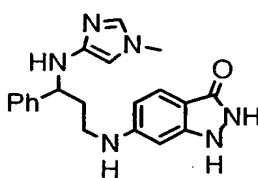
**IV-32**



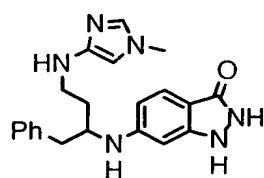
**IV-33**



**IV-34**



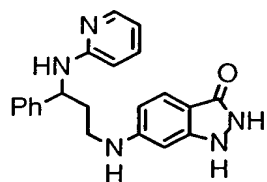
**IV-35**



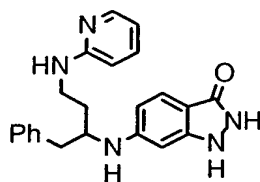
**IV-36**



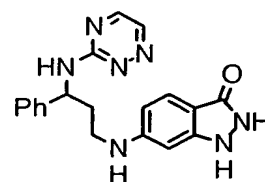
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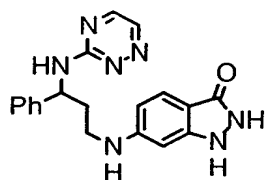
IV-37



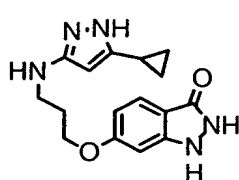
IV-38



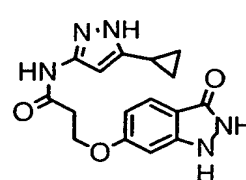
IV-39



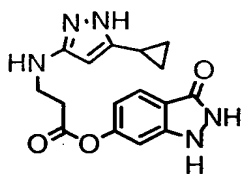
IV-40



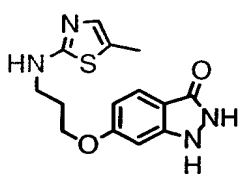
IV-41



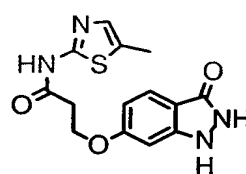
IV-42



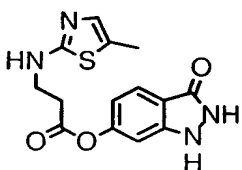
IV-43



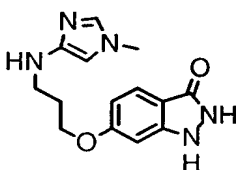
IV-44



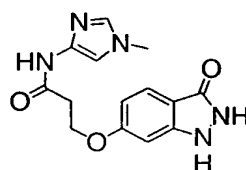
IV-45



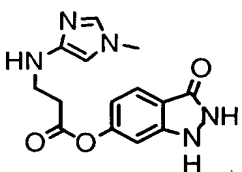
IV-46



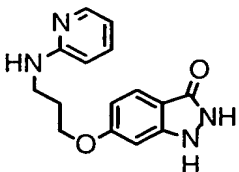
IV-47



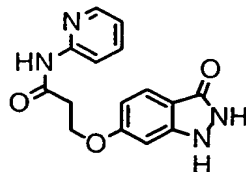
IV-48



IV-49

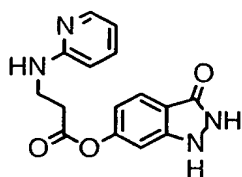


IV-50

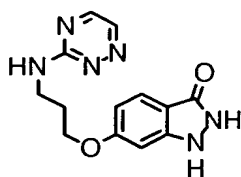


IV-51

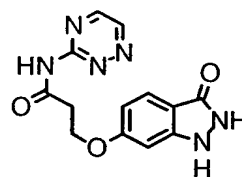
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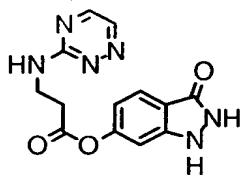
**IV-52**



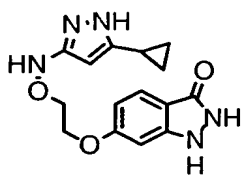
**IV-53**



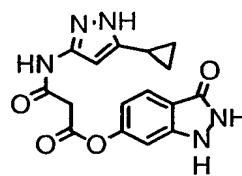
**IV-54**



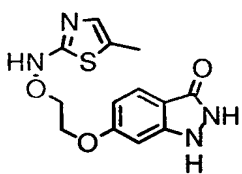
**IV-55**



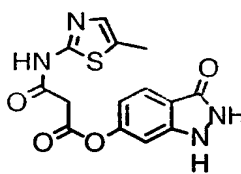
**IV-56**



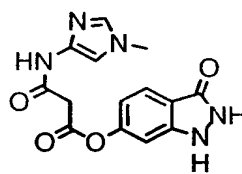
**IV-57**



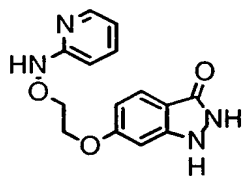
**IV-58**



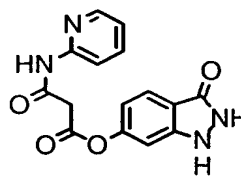
**IV-59**



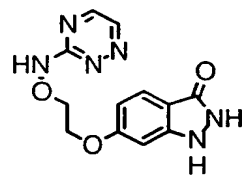
**IV-60**



**IV-61**

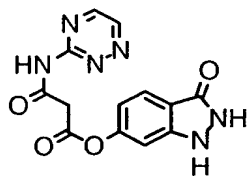


**IV-62**

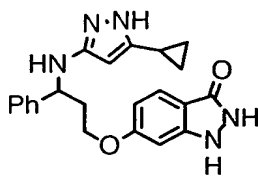


**IV-63**

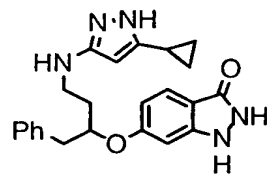
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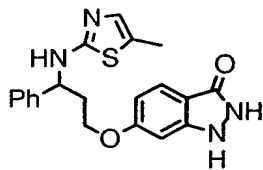
**IV-64**



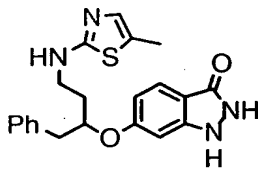
**IV-65**



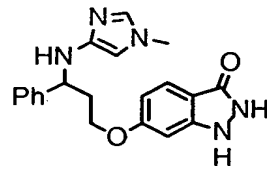
**IV-66**



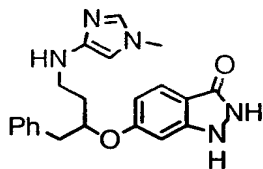
**IV-67**



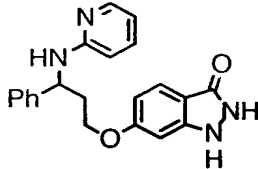
**IV-68**



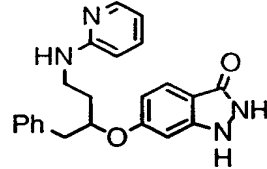
**IV-69**



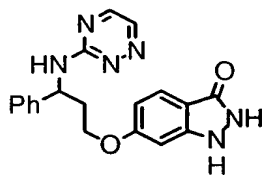
**IV-70**



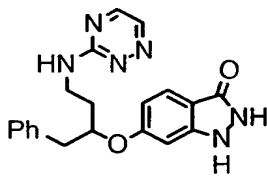
**IV-71**



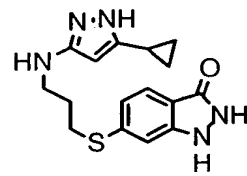
**IV-72**



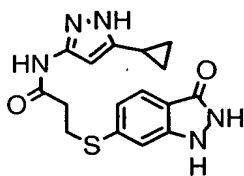
**IV-73**



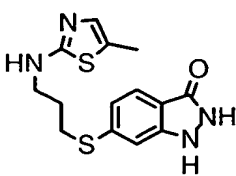
**IV-74**



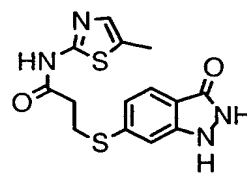
**IV-75**



**IV-76**

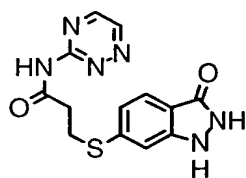


**IV-77**

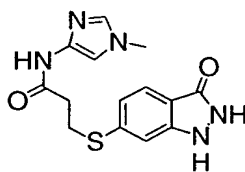


**IV-78**

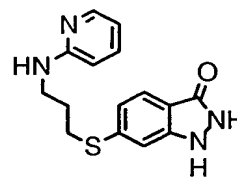
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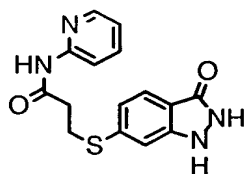
IV-79



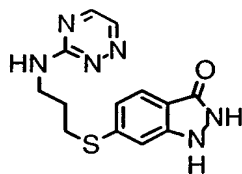
IV-80



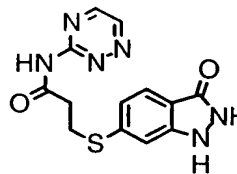
IV-81



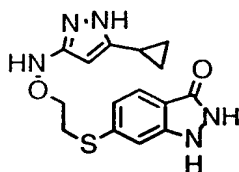
IV-82



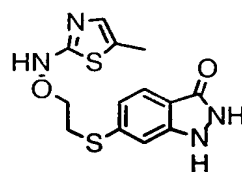
IV-83



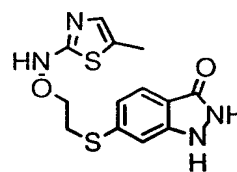
IV-84



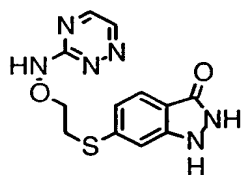
IV-85



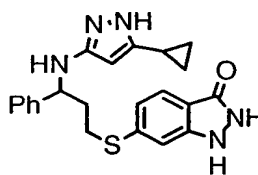
IV-86



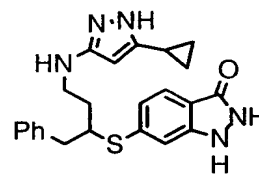
IV-87



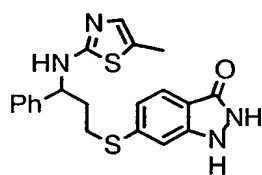
IV-88



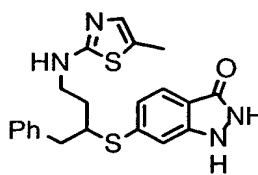
IV-89



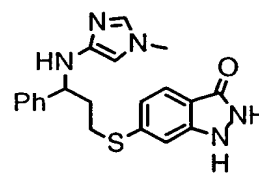
IV-90



IV-91

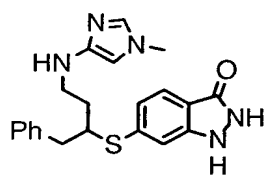


IV-92

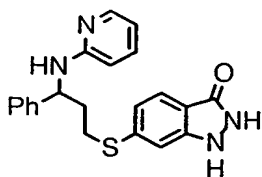


IV-93

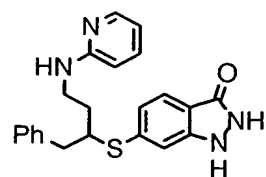
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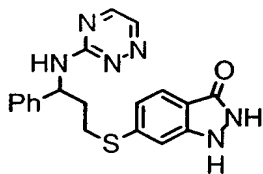
**IV-94**



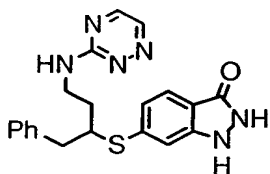
**IV-95**



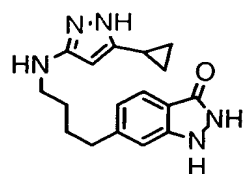
**IV-96**



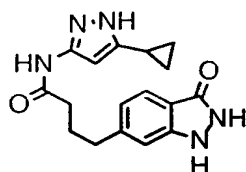
**IV-97**



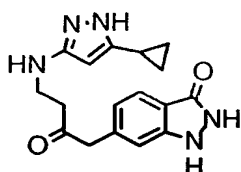
**IV-98**



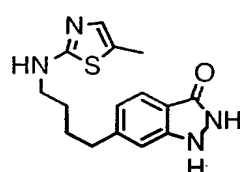
**IV-99**



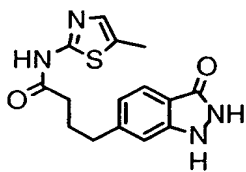
**IV-100**



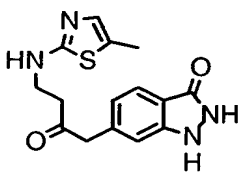
**IV-101**



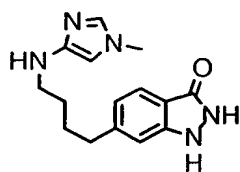
**IV-102**



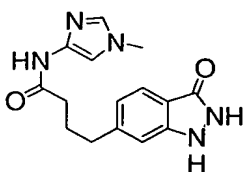
**IV-103**



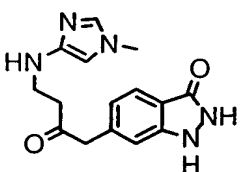
**IV-104**



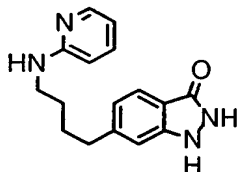
**IV-105**



**IV-106**

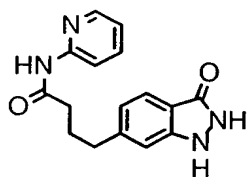


**IV-107**

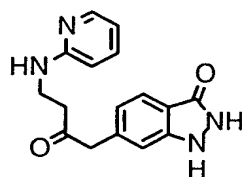


**IV-108**

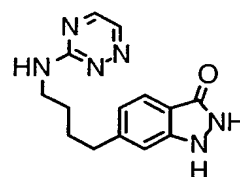
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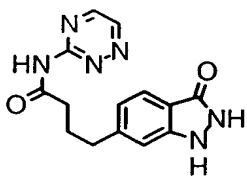
IV-109



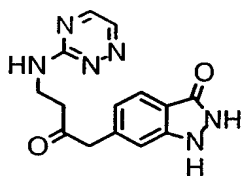
IV-110



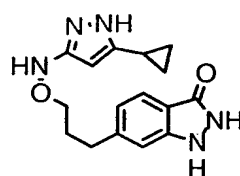
IV-111



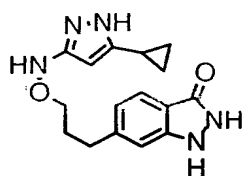
IV-112



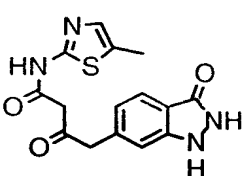
IV-113



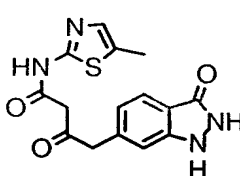
IV-114



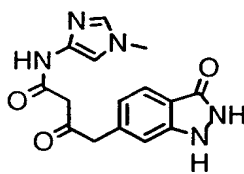
IV-115



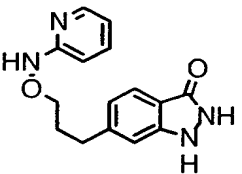
IV-116



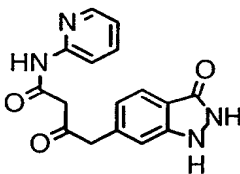
IV-117



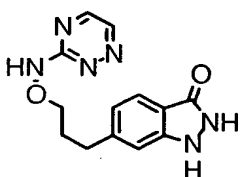
IV-118



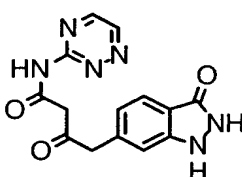
IV-119



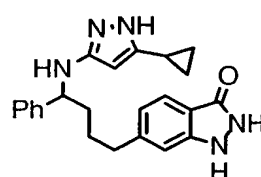
IV-120



IV-121

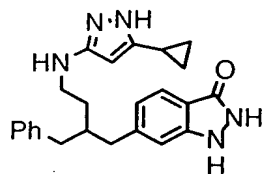


IV-122

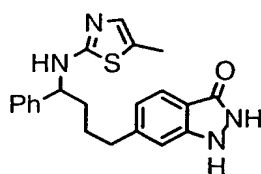


IV-123

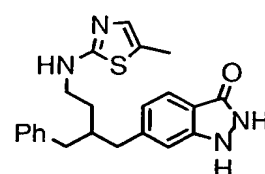
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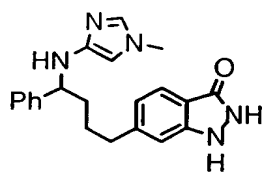
IV-124



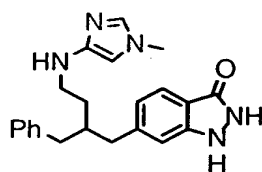
IV-125



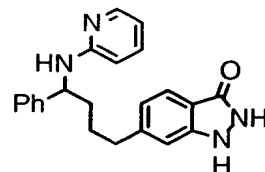
IV-126



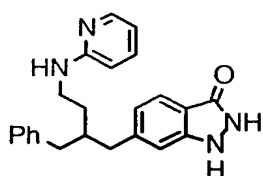
IV-127



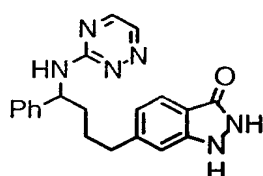
IV-128



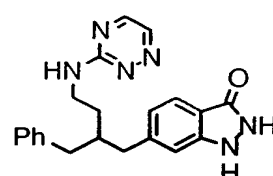
IV-129



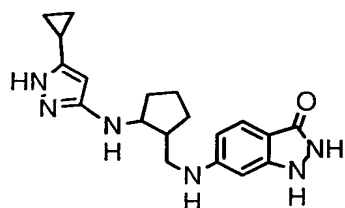
IV-130



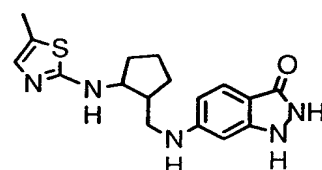
IV-131



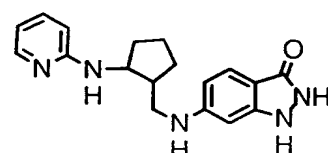
IV-132



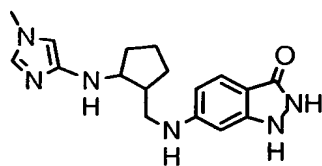
IV-133



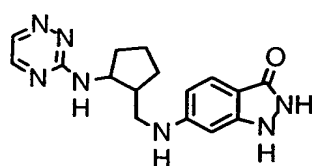
IV-134



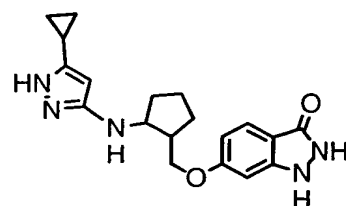
IV-135



IV-136

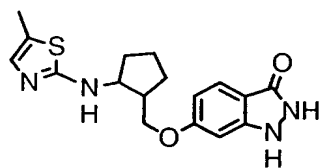


IV-137

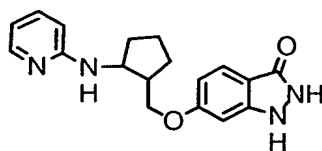


IV-138

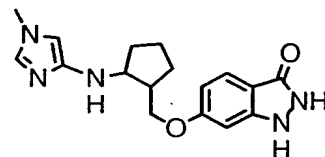
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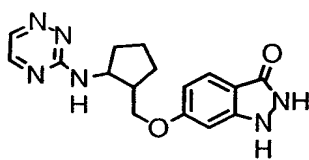
**IV-139**



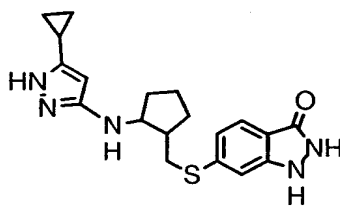
**IV-140**



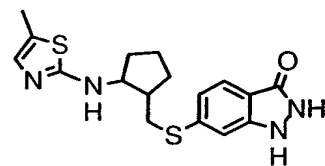
**IV-141**



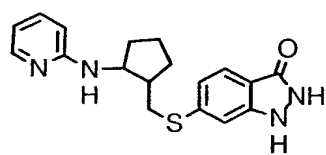
**IV-142**



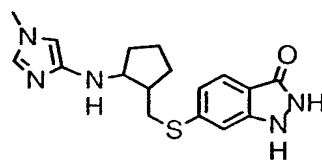
**IV-143**



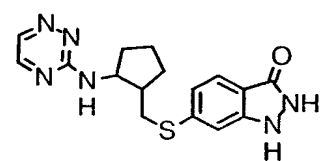
**IV-144**



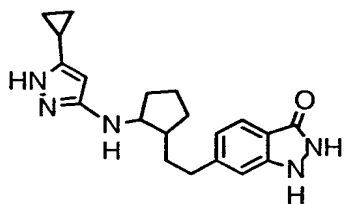
**IV-145**



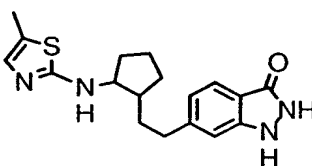
**IV-146**



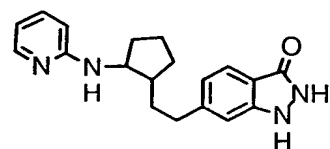
**IV-147**



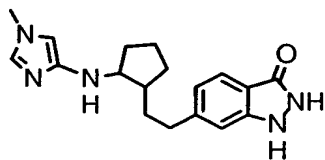
**IV-148**



**IV-149**

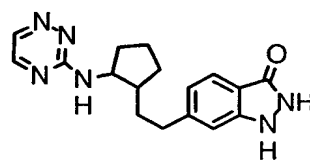


**IV-150**



**IV-151**

or



**IV-152.**